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NOVELTIES OF 1909.

IN the past year the proportion of Orchid hybrids amongst the new plants has been greater than ever, the number of introduced species being comparatively small. The botanist, however, may take pleasure in the fact that there is an increased interest in the botanical species which from time to time find their way to the famous collections of Sir Trevor Lawrence, Bart., K.C.V.O., Sir Jeremiah Colman, Bart., V.M.H., Mr. J. Talbot Clifton, and others who delight in the quaint beauties of the less showy kinds, such, for instance, as may be seen in large numbers in the collections in the Royal Botanic Gardens at Kew, Glasnevin, and Edinburgh.

Col. G. L. HOLFORD, C.I.E., C.V.O., takes the lead against all comers in the number and excellence of the hybrids raised at Westonbirt. During the year Col. Holford was awarded First-class Certificates for *Lælio-Cattleya Pizarro* Westonbirt variety and Holford's variety (*L. Jongheana* × *C. Dowiana aurea*); *L.-C. Mikado*, a finely-coloured hybrid of unrecorded parentage; *L.-C. Barbarossa*, *Cypripedium Earl* of Tankerville, *Cattleya Trianae* Mooreana, *C. Schröderæ* "The Baron," and the large and finely-coloured *C. Mossiæ* Countess Grey. Awards of Merit were obtained for *Lælio-Cattleya Goldfinch superba*, *L.-C. Goldcrest*, and *L.-C. Golden Oriole* Westonbirt variety, all with rich yellow colour predominating; *L.-C. Pac-tolus*, *Cattleya Maggie Raphael* Westonbirt variety, *C. Dirce superba*, *C. Mossiæ* A. Dimmock, distinguished by its large flowers and

broad white margin to the lip; *Dendrobium Schneiderianum* Westonbirt variety, *Brasso-Cattleya Digbyano-Mendelii* perfecta, a handsome blush-white flower; *Cypripedium Cynthia*, *C. Beacon*, *C. Alabaster* magnifica, *Odontoglossum Sylvia* Westonbirt variety, and *Vanda Watsonii*. *V. Watsonii* and the allied species *V. Kimballiana* is grown with unusual success at Westonbirt.

Scarcely less interesting than the novelties from Col. Holford's collection were the many fine specimens contained in the marvellous groups staged by his grower, Mr. H. G. Alexander. Among these were *Cymbidium eburneo-Lowianum*, with 32 spikes and a plant of the reverse cross with 19 spikes; *Cattleya Enid* Westonbirt variety, with seven flowers on a spike; and *Odontoglossum Pescatorei*, with 153 flowers.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), included the following among his best hybrids which gained awards: *Odontoglossum loochristiense aureo-fulvum*, so remarkable for its fine colour: *Lælio-Cattleya Feronia* (*C. Enid* × *L.-C. Haroldiana*), of glowing colour; and the blush-white *L.-C. Frederick Boyle* var. *Kerchovæ*. Sir Trevor Lawrence's favourite species include the remarkable *Angræcum expansum*, *A. stylosum*, the very singular *A. forcipatum*, *Epidendrum densiflorum*, *Brassavola Martiana*, *Megaclinium purpureo-rachis*, with its singular strap-like inflorescence and ranges of insect-like flowers; the elegant little *Cirrhopetalum vaginatum*, and the singular and handsome *C. longissimum*, with a slender head of pretty white and rose-coloured flowers approaching a foot in length.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park, Surrey (gr. Mr. Collier), whose well-grown collection embraces some fine home-raised hybrids, many excellent varieties of species, and a large number of curious Orchids, showed the charming *Dendrobium Lady Colman*, a model in form and of delicate colouring, surpassing any of his former hybrids. His novelties in species included the pure white flower, *Spathoglottis plicata alba*, and *Dendrobium taurinum Colmanii*, for each of which an Award of Merit was given, the same recognition being made to *Cattleya Mossiæ* Gatton Park variety and *Cirrhopetalum fascinator*. Botanical Certificates were obtained for *Phaius pauciflorus*, *Nephelaphyllum pulchrum*, *Gongora quinquenervis*, and the singular *Bulbophyllum lemniscatoides*.

The late NORMAN C. COOKSON, Esq., whose loss orchidists have to mourn, leaves behind as a record of his cleverness and enthusiasm: *Odontioda Bradshawiæ* Cookson's variety, which was likened to a cinnabar-scarlet *O. crispum*, and which secured a First-class Certificate on May 9; the finely-coloured *O. percultum* Cookson's variety, *O. ardentissimum* Norman Cookson; *Phoebe* (First-class Certificate, February 9), and *Odontoglossum crispum* Angela. The interest in the Oakwood collection is maintained by Mrs. Cookson (gr. Mr. H. J. Chapman), and several excellent hybrids have been shown since Mr. Cookson's decease.

H. S. GOODSON, Esq., Fairlawn, West Hill, Putney (gr. Mr. G. E. Day), who prefers showy Orchids with plenty of bright colour, obtained First-class Certificates for *Odontioda Ernest Henry* (*O. Queen Alexandra* × *C. Noezliana*), *Odontoglossum Goodsonii* (*O. Uro-Skinneri* × *Pescatorei*), a very distinct and pretty hybrid, and the white-petalled *Cattleya Hardyana* The Baron; also an Award of Merit for one of the richest *Lælio-Cattleyas*, known as *Black Prince*, and a similar award for *Odontioda Goodsoniæ*, a rich scarlet bloom with narrow lines of cream-white.

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham (gr. Mr. Black), has

been specially successful with brilliant *Sophras-Cattleyas*. He has received awards for *S.-C. Thwaitesii* and *S.-C. Blackii*, the former a cross between *S. grandiflora* and *C. Mendelii* and the latter from *S. grandiflora* and *C. Hardyana*. Both have rich, dark scarlet flowers. A Certificate of Appreciation was obtained for the remarkable *Dendrobium atro-Brymerianum*; and, among many other excellent things shown from Chessington, the selection of the pretty mauve-purple *Odontioda Thwaitesii*, which secured a First-class Certificate in July, 1908, has several times been presented so improved in size and colour as to well warrant the distinction.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), secured awards for the brightly-coloured *Sophras-Lælio-Cattleya Olive* (*S.-L. Psyche* × *C. Enid*), *Odontoglossum amabile* Fowlerianum, and *O. Wyonianum*, both attractive hybrids. The deep scarlet *Odontioda Keighleyensis* Fowler's variety obtained a First-class Certificate as recently as December 21.

FERGUS MENTEITH OGILVIE, Esq. (gr. Mr. Balmforth), obtained a First-class Certificate for *Cattleya Trianae* Grand Monarch, a noble flower.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks, secured First-class Certificates for *Odontoglossum Theodora* (*Rossii rubescens* × *triumphans*), and the beautiful *Odontioda Vuylstekeæ* Crawshayanum.

Awards of Merit were given to J. FORSTER ALCOCK, Esq., Northchurch, for *Cypripedium Leander* Exhims variety and *C. Euryades* New Hall Hey variety; to W. THOMPSON, Esq. (gr. Mr. Stevens), for *Cypripedium Our Queen*; and to G. F. MOORE, Esq., Bourton-on-the-Water (gr. Mr. Page), for *Cypripedium Bridgeti* magnificum and *C. Curtmanni* (*Mons. de Curte* × *Beekmannii*), both handsome *Cypripediums*.

Mr. F. W. MOORE, M.A., of the Royal Botanical Gardens, Glasnevin, has sent from the remarkable collection of rare Orchids in the famed Dublin gardens some of the very singular plants that have bloomed there. Two of the most remarkable of these were *Dendrobium muricatum* and *Monomeria barbata*, and a Botanical Certificate was awarded in each case.

W. WATERS BUTLER, Esq., Edgbaston, Birmingham, who has a fine collection of *Cattleyas*, secured an Award of Merit for *Cattleya Warszewiczii* W. Waters Butler, a fine and richly-coloured form.

NURSERYMEN.

MESSRS. CHARLESWORTH & Co., Haywards Heath, have shown a very large number of new Orchids in the groups which they have staged at nearly all of the meetings of the Royal Horticultural Society. Of the nine novelties which secured First-class Certificates the superb *Lælio-Cattleya Nelthorpe* Beauclerk, shown on November 23, and the *Brasso-Cattleya Cliftonii* magnifica, of March 9, were among the best. The others were *Sophras-Lælio-Cattleya Marathon* var. *Vesuvius*, *Lælio-Cattleya Eurylochus*, *L.-C. Felicia*, *Odontioda Lutetia*, *Cattleya Percivaliana* Charlesworthii, the dark-coloured *Oncidium* Charlesworthii, and the elegant *Cirrhopetalum pulchrum* Cliftonii, all of the highest value as garden plants. Awards of Merit were obtained for *Odontioda Keighleyensis*, *Epi-Lælia Lionetii*, with good rose-coloured flowers; *Cattleya Mrs. Pitt superba*, and *Zygo-Colax* Charlesworthii, the variety *rubida* of which secured a well-merited First-class Certificate on December 21. The firm also showed the interesting *Miltonioda Harwoodii* (*M. vexillaria* × *C. Noezliana*), for which a Certificate of Appreciation was given, *Oncidium hybridum*, *Pleurothallis Birchenallii*, and many other rare species.

MESSRS. SANDER & SONS, St. Albans, who have never relaxed their efforts to secure new

Orchids, have been very successful in importing good forms of many showy Orchids, the best of which is *Dendrobium Sanderæ*. This has a free growth and good habit, the leafy stems being surmounted by arching sprays of large, white flowers, with some delicate purple lines extending from the sap-green base of the lip. It was awarded a First-class Certificate on August 13. The large, clear white *Cattleya Schröderæ* Mrs. F. Sander and the finely-coloured *Lælio-Cattleya Martinetii* The Prince also secured First-class Certificates. Other awards to Messrs. Sander & Sons were for *Lælio-Cattleya Invincible*, a very fine, dark flower; *Vanda cœrulea* Dreadnought, *Odontoglossum ardentissimum* Starlight, which is a remarkable instance of continuation of parental characters, its flowers having the small purple speckling as in one of its parents, namely, *O. crispum* Starlight; *O. Dreadnought*, a very large yellow and red-brown flower, with an exceptionally fine lip; *Miltonia Bleuana* Sander's variety, *Cattleya Mossiæ Wageneri* Sanderæ, a fine, clear white flower; the very distinct *Cypripedium Lion*, shown on December 7; the superb albino-like *C. Mrs. F. Sander*, which secured a First-class Certificate on December 21; and the white *Dendrobium Phalænopsis* Sander's variety. Among the many species shown by the firm *Megaclinium Arnoldianum* and *Chytroglossa Marileonia* were selected to receive Botanical Certificates.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, Chelsea, the pioneers of Orchid hybridisation, still pursue this work at their Langley establishment, where good results continue to be obtained. *Cypripediums* have been prominent, especially varieties of *C. elatior* (*Leeanum* × *Baron Schröder*), which are remarkable for their fine form and variation. The last variety, named *Rex*, is a model flower. The rare *Disa polygonoides* and some others also flowered with Messrs. Veitch during the year.

Messrs. MOORE, LTD., Rawdon, Yorks., have shown many good Orchids during 1909, their *Dendrobium acuminatum*, which obtained a First-class Certificate and was illustrated in the *Gardeners' Chronicle*, August 28, being a most beautiful novelty. The same firm showed a finely-flowered specimen of *Cœlogyne asperata*.

Other certificated plants recorded from various raisers are *Cynoches peruvianum* Tracy's variety, from Mr. H. A. Tracy; *Cymbidium*

Woodhamsianum Orchidhurst variety, from Messrs. Armstrong & Brown; the fine, white, wax-like *Cypripedium Boltonii*, from Mr. Wm. Bolton; *Cattleya Schröderæ* Irene, from Mr. Jensen; *Eria ornata* and the charming *Cattleya Rhoda conspicua*, from Messrs. Stuart Low & Co.; *Oncidium pumilum*, *O. barbatum*, and *Bulbo-*

magnificent flowers *Mons. le Comte de Hemptine* showed at the Orchid Committee meeting on November 9 *Lælio-Cattleya Baroness Schröder* var. *Mme. Henriette*. This novelty has a purple-feathered line on the petals and was given an Award of Merit. At the last meeting of the R.H.S. Orchid Committee in the



FIG. 2.—PORTION OF WATER-GARDEN AT ALDENHAM HOUSE.

phyllum hirtum, from Mr. Gurney Wilson; and *Oncidium Retemeyerianum* and *Sigmatostalix Eliæ*, from Mr. Birchenall, being of the same class.

CONTINENTAL EXHIBITS.

MONS. CHAS. VUYLESTEKE, of Loochristi, Ghent, showed some superb *Odontoglossums* at the Temple Show, and received First-class Certificates for *O. Mirum* Emperor of India, *O. Aglaor*, and *O. Princess Victoria Alexandra*, all

year, *Mons. Firmin Lambeau*, of Brussels, obtained a First-class Certificate for the finely-coloured *Lælio-Cattleya Firminii*.

The following Orchids are among those illustrated in the *Gardeners' Chronicle* during 1909:—

- Agræcum Augustum*, Supp., Feb. 6.
- Angræcum Kotschy*, Sept. 25, p. 221.
- Angræcum sesquipedale*, June 19, p. 309.
- Brasso-Cattleya Cliftonii*, Jan. 16, p. 34.
- Bulbophyllum Dayanum*, Mar. 27, p. 194.
- Bulbophyllum lemniscatoides*, Jan. 30, p. 68.
- Bulbophyllum saurocephalum*, Oct. 9, p. 242.
- Calanthe Dominyi*, Supp., Nov. 13.
- Cattleya Iris King* Edward VII., Oct. 16, p. 258.
- Chondropetalum Fletcheri*, Jan. 2, p. 9.
- Cœlogyne asperata* (Lowii), July 17, p. 34.
- Cœlogyne cristata* at Earl Cawdor's, July 31, p. 75.
- Cynoches* with male and female flowers, Jan. 9, p. 26.
- Cynoches pentadactylon*, male and female flowers, Jan. 9, p. 27.
- Cynoches peruvianum* Tracy's variety, May 15, p. 309.
- Cynoches Warszewiczii*, male and female flowers, Jan. 9, p. 29.
- Cypripedium Earl of Tankerville*, Feb. 13, p. 101.
- Cypripedium parviflorum*, C. Thunbergii, C. ventricosum, Oct. 2, pp. 227, 228, 229.
- Cypripedium tibeticum* and C. margaritaceum, Supp., Dec. 18.
- Dendrobium acuminatum*, Aug. 28, p. 150.
- Dendrobium Sanderæ*, June 12, p. 374.
- Dendrobium speciosum*, Mar. 13, p. 165.
- Disa grandiflora*, group, Aug. 28, p. 154.
- Eulophiella Elisabethæ*, June 26, p. 407.
- Lælio-Cattleya Elinor*, Supp., Feb. 20.
- Lælio-Cattleya Felicia*, Feb. 13, p. 100.
- Lælio-Cattleya Lustre gigantea*, Supp., Mar. 13.
- Lælio-Cattleya Pizarro* Westonbirt variety, Supp., April 10.
- Megaclinium purpureo-rachis*, May 8, p. 293.
- Odontioda Bradshawii* Cookson's var., Mar. 13, p. 174.
- Odontioda Chelseiensis*, May 29, p. 348.
- Odontioda Ernest Henry*, May 22, p. 321.
- Odontioda Goodsoniæ*, Mar. 27, p. 195.
- Odontoglossum ardentissimum* Phœbe, Feb. 27, p. 132.
- Odontoglossum crispum* Harryanum with 125 flowers, Feb. 27, p. 133.
- Odontoglossum crispum* xanthotes var. Mrs. F. M. Ogilvie, April 24, p. 258.
- Odontoglossum Magali Sander*, Jan. 16, p. 37.
- Odontoglossum periclymenum* varieties, Sept. 11, p. 180.
- Odontoglossum Smithii*, April 3, p. 212.
- Odontoglossum Theodora*, April 24, p. 269.
- Odontoglossum Wyonianum*, April 3, p. 211.
- Oncidium abortivum*, Nov. 13, p. 322.
- Oncidium Charlesworthii*, June 12, p. 377.
- Phalænopsis gigantea*, May 15, p. 306.
- Pleurothallis Birchenallii*, June 19, p. 391.
- Vanda cœrulea*, specimen, Supp., April 24.
- Vanda teres*, Mr. Rothschild's group, June 5, p. 365.

(To be continued.)



FIG. 1.—BED OF SWAINSONIA AND LANTANA IN ALDENHAM HOUSE GARDENS.

[Photograph by H. N. King.]

ALDENHAM HOUSE.

(Continued from vol. xlv., p. 429.)

THE portion known as the wilderness is one of the most charming features of the Aldenham gardens. Part of the site was originally a wood, through which one of the carriage drives passed to the St. Albans Road. The wood was well stocked with Oak, Elm, Lime and Scots Fir. On the north side of the wood the park skirted down to the lake, which was formerly a natural pond of much smaller dimensions than the pond now existing. On the north side of the wood and carriage drive the park formerly joined the road, but the greater part of this portion of the park has been added to the wilderness at the rate of 10 acres each year. The wilderness is broken up into areas by grass paths, which extend in straight lines at various angles, and have the effect of throwing into prominence handsome tree stems, statuary, stone seats, well-heads or handsome gates.

There are miles of grass walks, which in the summer are delightful promenades. These have been specially made that they may be in a condition for use at all seasons of the year. As the land at Aldenham is naturally heavy and retentive of moisture, the soil was excavated, and a foundation of stones and rough gravel put in. Over this a thin layer of soil was applied for relaying the turf. The result is that the paths are green, firm, and dry at all seasons of the year.

In the wilderness a special feature is made of grouping shrubs and trees, a subject in which the Hon. Vicary Gibbs takes the deepest interest. The grouping is done on a large scale for obtaining bold effects. Some species are cut down annually to within a few inches of the soil to induce them to make extra strong sucker-like growths of a tropical appearance. Imagine 50 plants of *Paulownia imperialis* making an annual growth of 10 feet after such treatment! Other species treated similarly include golden and red-barked Willows, *Hydrangea paniculata grandiflora*, *Spiræa Douglasii*, *Populus canadensis*, *Cornus sanguinea*, *Rhus glabra*, the golden Elder, and the Snow-berry (*Symphoricarpos racemosus*). The Snow-berry usually produces plentiful crops of its white berries.

Among massed subjects that are not cut down I can only enumerate a few of those most desirable:—*Exochorda grandiflora*, *For-sythia suspensa*, *Rhus Cotinus*, *Berberis Aquifolium*, *Spiræa prunifolia* fl. pl., *Cotoneaster Simmonsii*, *Rosa rugosa*, *Rosa rubrifolia*, the

Heliotropes, tuberous and fibrous-rooted *Begonias*, *Calceolarias* and similar plants.

The bed of *Swainsonia galegifolia alba*, with *Lantana delicatissima* as a carpet (see fig. 1), was very effective last season. A covered archway extends over the path leading from the



FIG. 4.—FLOWER BORDERS IN THE KITCHEN GARDEN AT ALDENHAM HOUSE.

double-flowered Furze, *Berberis vulgaris purpurea*, *Hypericum calycinum* and the Sea Buckthorn (*Hippophæ rhamnoides*), which produces fine crops of berries.

The flower-garden is situated on the eastern side of the house. It is encircled with a low brick wall. The beds are margined with cement-coloured edgings, the space between being covered with gravel. In summer time rich displays are made with Fuchsias, Pelargoniums,

flower-garden. It is made of iron trelliswork, and is furnished with *Aristolochia Siphon*, Honey-suckles, Roses, *Clematis Jackmannii*, and Virginian Creeper. In the autumn, when most of the foliage is red, the effect from the dwelling-house is gorgeous. Next to the flower-garden and at the foot of a low terrace slope, is the Rose garden encircled by a neatly-clipped Yew hedge. The beds are of large size, but each contains only one variety of Rose. In this way masses of distinct colours are obtained. Such varieties as Mme. Abel Chate-nay, Victor Hugo, Alistair Stella Gray, Caroline Testout, Gustave Regis, and Lady Battersea are the leading sorts. Many Roses are grown in other parts of the garden, merely for the production of flowers for cutting, notably on a low iron fence some 400 yards in length dividing the wilderness from another part of the garden. This fence has been covered with climbing varieties, such as Lady Gay and many *Wichuraiana* hybrids.

The water-gardens are extensive and very beautiful. Apart from the large lake already mentioned, a stream commences on the north-west side of the mansion and meanders through the grounds for almost half a mile. In places it is only a few feet in width, then it widens out into large pools, such as that shown in the Supplementary Illustration in last week's issue. The irregular margins are planted with groups of such subjects as *Alisma natans*, *Butomus umbellatus*, *Caltha palustris*, *Typha angustifolia*, *Pontederia cordata*, *Menyanthes trifoliata*, *Polygonum cuspidatum* and *P. sachalinense*. Nymphæas include many of Mons. Mariac's hybrids, such as *albida*, *carnea*, *chromotella* and *rubra punctata*. Japanese Irises succeed admirably.

The rockeries and watercourses were made by Mr. J. Pulham, under the direction of the Hon. Vicary Gibbs, who designed the bridges. A fine feature is that of a double avenue of Thorns and Poplars on grass extending parallel



FIG. 3.—ONE OF THE MANY BRIDGES IN ALDENHAM HOUSE GARDENS.

(To be continued.)

* A GREAT BOOK ON VEGETABLES.

The Vegetable Garden's Guide, vol. 1. By J. H. Wright, V.M.H., and Horace J. Wright. (London: Virtue & Co.) Price 41 1s.

NEW CHINESE RHODODENDRONS.

This species is remarkable in having an almost rotate, yellow corolla; hence the specific name. *R. primulæiflorum*, Franchet, differs in having oblong, distinctly-stalked leaves, and in the corolla being tubular, the tube longer than the lobes.

+R HARROVIANUM, HEMS'

THIS is one of a number of closely-allied Chinese species of small stature, having small leaves and small flowers, in colouring not unlike those of *R. Ponticum*. It is an evergreen shrub 1½ to 2 feet high in cultivation, lepidote in nearly all parts, including the outside of the corolla; at

* *RHOIS CHINENSIS* (FRANCHET) H. M. (1907) SPECIES RARA;
CHINA: SICHUAN PROVINCE: SUICHUAN DISTRICT: SUICHUAN
HAYAM 1000' (FRANCHET, 1907).
Rhois chinensis (Franch.) H. M. (1907) SPECIES RARA;
CHINA: SICHUAN PROVINCE: SUICHUAN DISTRICT: SUICHUAN
HAYAM 1000' (FRANCHET, 1907).
perististentia; lamina ovato-oblonga, 12 cm. longa, apicu-
lata, basi rotundata, bullata, margine recurva, utrinque
crebre lepidota, supra atroviridia, inter lepidos nitida,
canaliculata, subtus concava, pallida; petioli 2-3 cm.
longus. Flores 3-5 in apicibus ramorum pedicellati,
petalis et sepalis calicibus et corollae lobis calicibus
subnullis, herbaceis, lob's leviter inaequalibus, ovatis,
4-6 mm. longis, acute acuminatis, demum recurvis.
Corolla fere regularis, subrotata, circiter 2-5 cm.
diametro, haud lepidota, lobis rotundatis undulatis,
fauce villosula. Stamina 10, corollam aequantia, fila-
mentis paulo supra basin et infra medium incrassatis
barbatulis, ceterum glabris. Ovarium 5-loculare;
loculi breviter ovulati. Capsula ignota. — Chinae
occidentalis incola.
Legit L. H. Wilson, 1907.

Folia angustius minus distincte apiculatis, corollae lobis acutis et staminibus exsertis.

The name is given in compliment to Mr. Harrow, manager of Messrs. Veitch's Coombe Wood Nurseries, and a most enthusiastic cultivator of the rich collections under his charge.

FR BENTHAMIANUM. HEMSL.

THIS belongs to the same group as *R. Harrovianum*, Hemsl. and *R. coombense*, Hemsl. (*Bot. Mag.*, t. 8280), to both of which it is, indeed, very closely allied, differing from the former in the shorter, ovate, lanceolate leaves, green pedicels, irregularly-lobed calyx, and in the flower being purple throughout, whilst the latter has pink flowers, associated with stamens shorter than the corolla. It is also near *R. heliolepis*, Franch., but that has relatively large leaves and larger flowers, with broader corolla lobes. Generally speaking, the calyx of a *Rhododendron* affords a character which can be used in defining the species, but that of *R. Benthamianum* varies in the same truss of flowers. Sometimes all of the lobes are well-developed, linear-lanceolate, acuminate, and the longest nearly a quarter of an inch long; sometimes only two or three are thus developed, the rest being reduced to very short deltoid teeth. Occasionally they are all reduced; they are always scaly, but rarely ciliate, except in one specimen, bearing the same number, in which they are all very short and rounded and distinctly ciliate. But this, probably, is not the same species. *R. Benthamianum* is an evergreen shrub 1 to 2 feet high, with rather thick, rigid branches, leafy at the tip only. Leaves crowded, coriaceous, ovate-oblong, or sometimes almost oval, 1 to 2 inches long, rounded at the base, shortly apiculate, scaly on both surfaces at first, later

campanulata, 2-2.5 cm. longa, lobis latius acutis, extra
tubo saturata, rubro-purpurea, alio-lepidota, lobis vio-
laceo-purpureis, intus violaceo-purpureis, lobis superioribus
flavo-maculatis. *Stamina* 10, exserta, inaequalia,
longiora usque ad 3.5 cm. longa; filamenta supra basin
et infra medium zona pilorum longorum patentium
ornata, ceterum glabra. *Ovarium* 5-loculare, crebre
lepidorum; stylus glaber, cum ovario circiter 3-3.5 cm.
longus. *Capsula* 3-4 cm. longa. — Chinae occidentalis incolae
Legit E. H. Wilson.

‡ RHIZOMERIS BENTHAMIANUM (Hornem.) species
nova R. heliolepidi affinis, differt foliis floribusque
minoribus.

Stemmatopus ramosus, 30-50 cm. altus, ramis brevibus rigidis, hae lapideis vel lepidibus cito deciduis. *Folia*, ad apices ramorum conferta, petiolata, persistencia, primum utrinque lepidota, lamina coriacea, ovato-oblonga vel interdum fere elliptica, 3-5 cm. longa, basi rotundata, brevissime apiculata, supra laevia, creberrime minuteque verrucosa, atroviridia, nitida, costa impressa, venis immersis obsoletis, subtus lepidota, inter lepidos brunneos albidia; petiolus crassus, 3-5 mm. longus, corrugatus. *Flores* usque ad 8 in ramorum apicibus aggregati, sed saepius pauciores, pedicellati, pedicellis gracilissculis 5-10 mm. longis albo-lepidotis, inter lepidos viridibus. *Calyx lobis* variabiles, semper plus minusve inaequales, lepidoti, nunc omnes bene evoluti, lineari-lanceolati, longiores 6-7 mm. longi, nunc 2-3 tantum evoluti, rarius omnes rotundati, brevissimi vel fere obsoleti. *Corolla* late campanulata, circiter 5 cm. diametro, rubro-violacea, extus albo-lepidota, intus postice brunneo-maculata; lobii lati, rotundati, undulati. *Stamina* 10, alterna breviora, longiora corollam aequantia; antherae aurantiacae. *Ovarium* 5-loculare, crebre lepidotum; stylus glaber, stamina vix excedens. *Capsula* ignota.—*Chinae* occidentalis incola. *Legi: E. H. Wilson*, 1878, 1235.

glabrous above, dark green, shining, minutely wrinkled, veins inconspicuous, white underneath between the brown scales; petiole very short, thick, corrugated. Flowers sometimes as many as eight in a cluster, but usually four or five, on rather slender stalks, about $\frac{1}{2}$ inch long. Calyx-lobes very variable, as described above. Corolla broadly campanulate, about 2 inches across, uniformly pale violet-purple, with white scales on the outside and brown blotches in the upper part of the inside; lobes broad, rounded, wavy. Stamens 10, not exceeding the corolla; filaments bearded below the middle. Style glabrous. *W. Botting Hemsley.*

PLANT NOTES.

EUPATORIUM WEINMANNIANUM.

THIS late-flowering, South American plant will withstand the winter in favoured localities, such as districts south of London, or near the sea coast. The plant is shrubby or sub-shrubby, and is valuable for its late flowers, when frost has destroyed almost all others in the open. In a Sussex garden in November, I was impressed by the beauty of a handsome bush of this *Eupatorium* several feet across. The plant was growing in a border without protection in the greatest luxuriance, the soil being a heavy, greasy clay, and it had been there since it was quite a small specimen. It was covered with its fragrant inflorescences, every twig and branch from the ground level to a height of 4 feet bearing numbers of blossoms. When grown under glass the petals are nearly white, but in the open they assume a pink tinge, which renders the plant even more conspicuous. Untouched by the frosts, this *Eupatorium* gave promise of a display until the end of the month. *E. H. Jenkins.*

TREES AND SHRUBS.

TRICUSPIDARIA.

THE plant generally known as *Crinodendron Hookerianum*, or *C. Hookeri*, has borne several names. In *Nicholson's Dictionary of Gardening* it is given the title of *Tricuspidaria hexapetala*, but in the century supplement of that work we read "*Tricuspidaria dependens* is the correct name of *T. hexapetala*." Still later another alteration was made, a new white-flowered shrub that had been found being held to be entitled to the name of *Tricuspidaria dependens*, and *Crinodendron Hookeri* was forthwith styled *Tricuspidaria lanceolata*. Though first imported into this country from Chili several years previously, it was not distributed until 1881, and for some time it remained very rare in gardens. The species was at first considered merely a greenhouse plant, but, on being tried in the open in the warmer localities, it was found to be fairly hardy and to succeed admirably out-of-doors. It is now largely grown in the south of England, in Ireland, and on the west coast of Scotland. This distinct and beautiful shrub is hard and stiff in growth and its leaves, which are about 3 inches in length, are dark green, wrinkled and serrated at the edges. The flowers are urn-shaped and of a bright, rosy-crimson colour. They hang by very long stalks, and a plant in full bloom is an extremely attractive object, being unlike any other shrub in flower. The blossoms are thick in texture and retain their freshness for a considerable time, a singular feature being the remarkably long period that the flower-buds take to attain their full size. They are produced from the axils of the leaves and are formed early in the autumn, but do not expand until the end of the following May. There are many fine specimens in gardens, one of the best being, probably, that in the

garden that belonged to the late Rev. Henry Ewbank, at Ryde, Isle of Wight. This is about 10 feet in height, as much through, and, when loaded with countless, drooping blossoms, is a marvellous sight, appearing crimson from a little distance. There are said to be even larger examples in Ireland. Plants have borne seeds freely in some gardens. One good point about this shrub is that it blooms in a very small state, plants under a foot in height often carrying several flowers. Cuttings are not at all difficult to strike if formed of the half-ripened shoots, placed in well-drained pots of sandy peat and kept in a close propagating case in gentle heat until rooted. Propagation may also be effected by layers. In the open this species appears to do best in a compost of fibrous peat mixed with loam and a liberal proportion of sand. The new *Tricuspidaria dependens* bears drooping, white, bell-shaped blossoms, the mouth being prettily fringed and open, not almost closed as in *T. lanceolata*. There is a fine specimen fully 10 feet in height in Cornwall. Up to the present it does not appear to have bloomed freely, and in this respect has compared unfavourably with *T. lanceolata*, which generally flowers profusely. It is said, however, that dried branchlets of *T. dependens* have been seen covered with blossom, so that it is to be hoped that this species will eventually flower more abundantly. It is a native of Chili, and appears quite as hardy as the better-known *T. lanceolata*. *W. Botting Hemsley, S. Devon.*

SUCKERS.

SUCKERS occur where there is a check to the sap and an excess of air in the soil. Bury a shoot and it makes roots; expose a root and it produces shoots. These opposite results are due to a change in the composition of the sap within the buried and exposed parts. The roots of some trees cannot form wood buds beneath the surface, but those of others are more resourceful, and can make buds which provide an upward growth in the form of suckers. In all cases suckers arise in response to influence of air, light and sun heat. It may be noticed that suckers spring almost entirely from the top sides of roots; that they occur only within the free and aerated depths; that only horizontal roots yield suckers; and that where a root rises and falls, the highest points alone develop wood buds and send forth shoots. Further, old trees sucker most, because their roots have so filled the soil as to force many near the surface, and where they come directly under the influence of air, light and sun heat.

Shallow, extra-stiff, cold and wet soils may induce suckering, since roots cannot long survive if placed beyond the reach of air, and any obstacle which prevents their working down or which forces the tree to throw roots near the surface has the effect of promoting suckers. Hence there are many natural causes of suckering. It is, in fact, a mode of propagation, but when we come to deal with domesticated trees we find that the suckering nuisance is much aggravated by man.

Some stocks, as the Mussel Plum and the White Thorn, have an innate tendency to throw suckers, their roots possessing the power of forming wood buds at greater depths in the soil than is common to most trees. If a stock is used with a tendency to sucker, we should know what class of soil, mode of planting, and after-treatment will cause the tree to have a clean and suckerless root system.

Apart from defective stocks, suckers are often due to faulty treatment of the soil and severe, ill-balanced pruning.

Careless digging also promotes suckers by allowing too much air to the roots and by causing wounds, whence bud-forming sap accumulates to produce suckers. Since a tree draws little or no sustenance from the soil over the heavy roots, nothing is gained, but much injury may be done, by deep digging all the soil within the root range, that is, if the tree is liable to

suckering. In such case, the weeds and litter skinned off and a covering of clean, new earth given in exchange will prove a much safer plan.

As cure depends on a knowledge of cause, the cultivator should discern every influence by which suckers are brought about. The forest, hedgerow, and park specimens are as fertile in illustration as the trees of the orchard and garden—often more so—and many people fail to learn their lesson because they do not look beyond the garden wall.

We may note that, as a tree ages, its roots come nearer the surface. They do not grow up, but the soil wears down and away. It is mainly from this cause that old trees are induced to throw suckers. Another reason is that their balance is upset by faulty circulation, for, as the bark hardens on the trunk and heavy branches, ligatures are formed, below which fluxes, or excessive accumulations of sap, occur, and, as these reduce the action of the leaves upon the roots, the sap of the latter alters till they are able to set about forming shoots and leaves for themselves.

Where the soil is frequently made up, the head pruning well done, and the surface kept free of heavy roots, suckers are not likely to prove a nuisance. It is within the power of the cultivator to compel roots to confine their activities to normal extensions within the soil.

The most serious point—where fruit trees are involved—lies in preventing suckers without throwing the trees out of fruit, for the deeper the root system the more crude and incapable is the sap of forming fruit-bearing wood. The most fruitful sap is obtained from fibrous roots growing in aerated soil, and, if a tree is limited to a deep root system, it will invariably make a coarse head and bear irregular crops of poor-quality fruit.

Thus, in preventing suckers, we may also prevent fruiting. It has been explained in other words that suckers tend to throw a tree out of bearing, because they intercept the sap which should go annually to form new head growth and sustain and fructify existing buds. The harm done by suckers is in proportion to the leaves they make. Thus, many sucker leaves sustain and extend the profound roots, and so alter their sap channels as to cut off supplies from much of the head of the tree. If suckers are not allowed to make leaves, they weaken, rather than strengthen, their parent roots, and it is often wiser to keep them down by two or three clearings in spring and early summer than to remove the roots furnishing them, since this course may leave the tree a deep and barren root system.

Where suckers spring from the bases of trunks, or from heavy surface roots which may not be removed, the parts should be covered with a depth of soil sufficient to change the nature and disposition of the sap within the parts. Three, six or even nine inches may be necessary, according to the kind and condition of the tree and the nature of the soil and general circumstances.

No tree of bearing age can be injured in any way by a heavy soil dressing over its main roots, or as a pile around the base of the stem. The only part of the soil which calls for free aëration is that over the fringe of the root system. A heavy and wide bandage is a safe means of preventing suckers at the junction of head and root bark—at the base of the stem.

To make a businesslike job, bare the roots sufficiently to cut off each sucker with a piece of root bark, or, if the suckers are very numerous, cut back the roots which produce them. Then, over such roots as may be left, put a layer of clay or close soil, and, after filling in, top-dress the surface with a few extra inches of new material. Old matted hay or bagging make capital mulches for this work, as they darken the soil, keep off the air and sun heat, and dispose the roots to act in a normal fashion. A slight covering of soil will prevent the mulch from looking untidy. *C. B. L.*

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DONOHUE, Gardener to JOSEPH PICKERSGILL, Esq., Hardon Hill, Weetwood, Yorkshire.

The plant houses.—It is especially desirable that the glasshouses should be kept scrupulously clean during the winter months. The glass itself needs cleansing both inside and out at frequent intervals, and the woodwork must be cleaned occasionally. If mealy-bug is present, adopt



measures to thoroughly eradicate the pest, now that time can well be afforded for the work, when many of the plants are leafless and dormant. In cleansing the woodwork, scrub every part with hot water and soft-soap mixed with a little paraffin, using one

wine-glassful of paraffin to each gallon of water. If any of the houses are to be repainted, the present time affords a favourable opportunity for doing the work. When the structure has been thoroughly cleansed, the plants may be overhauled, sponging or syringing them with some insecticide as may be necessary. Any plants which have ceased to be of value in the decorative houses may be removed to the propagating house to furnish cuttings for stock purposes. After everything has been made clean and tidy, rearrange the plants to the best advantage.

The stove.—Even the occupants of the stove need a season of comparative rest during the short days of winter, when the temperature should be slightly lowered and the atmosphere kept somewhat drier, until the early part of February. For the present an atmospheric temperature of from 65° or 70° will be suitable, but, whenever it exceeds the latter figures, the syringe should be used during the forenoon. During very cold weather, when extra warmth is required from the hot-water pipes, the staging and paths must be damped at intervals during the day to counteract the dry heat from the hot-water system.

Begonia Gloire de Lorraine.—Plants which have finished flowering will provide a supply of early cuttings, which usually produce the best specimens. Select the finest plants for stock purposes, and cut back the old flower-stems, but be careful to retain a fair amount of the foliage. After the plants have been made tidy and clean, place them in a structure having an atmospheric temperature of about 55°, arranging them near to the glass. Keep the roots moderately dry until the new shoots appear. Plants of this Begonia and its varieties may be propagated by means of leaves, and plants thus raised are the most easily cultivated. The leaves should be inserted singly in thumb pots, and afforded bottom heat until shoots have formed, when they may be placed near to the glass.

Euphorbia (Poinsettia).—Plants of Euphorbia pulcherrima which have finished flowering should be encouraged to ripen their shoots by gradually decreasing the amount of moisture at the roots. When all the foliage has fallen, and growth is dormant, they should be placed in their resting quarters. Examine them occasionally to see that the bark is not shrivelling.

Gloxinia.—Select some of the best tubers that ripened early, and place them just as they are without repotting on a shelf near to the glass. All that is necessary is to remove a little of the surface soil, and replace it with some rough, fibrous loam and peat, mixed with a little dry cow dung. When the flower-buds appear, give a slight top-dressing of bonemeal and let alternate waterings be carried out with weak liquid manure.

THE HARDY FRUIT GARDEN.

By A. R. SPARLE, Gardener to the Marquis of Northampton, Castle Ashby, Northamptonshire.

The fruit-room.—Examine carefully all Apples and Pears, and remove any which show the least sign of decay. If any are found to have decayed so badly as to cause a damp spot on the staging, see that it is made thoroughly dry before placing more fruit thereon. When the outside



conditions are favourable, a little air may be admitted each day, and, should there be an exceptionally fine day, the door may be left open for an hour occasionally, in order to thoroughly change the air. Should the fruit-room contain windrows, these must be well packed up with mats or straw from within as a safeguard against frost. See that the varieties of fruit are used at the right time, and endeavour to prolong the supply over as long a period as possible. Dessert Apples and Pears should be wiped with a soft cloth before they are sent to the house.

Root-pruning and planting.—This work should be proceeded with whenever the weather is suitable. Carefully remove any broken or damaged part with a sharp knife, making the cut to face the operator, so that the roots will have an upward tendency: this method of root-cutting I have applied to most kinds of fruit trees, and have found it very effective, causing a mass of roots to come quickly to the surface.

The past season.—The cold and comparatively sunless autumn has been unfavourable to the ripening of the shoots, which, in some instances, are still green and sappy. Should there occur such severe weather as was experienced in January last year, many trees may suffer considerable damage. In the meantime, it may be noted with satisfaction that there is a plentiful supply of fruit-buds on most of the trees. Owing to heavy rains, it was impossible to do much planting in the autumn; therefore, many trees have still to be planted.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

Preparation of soil.—Break up any portions of the flower garden that are still bare, and leave the surface in as rough a condition as possible, that a good tilth may be obtained when the time arrives for sowing or planting. Deep cultivation



is as necessary in the flower garden as it is in the cultivation of vegetables. Therefore, turn up the ground to a good depth, either by trenching or deep digging, and work in a liberal quantity of rotted manure where the ground is in a poor condition, giving the surface a good covering of soot as the work proceeds: the soot will have stimulating pro-

perties, and prove a valuable agent in cleansing the ground. These remarks specially apply to those quarters intended for such subjects as Dahlias, Delphiniums, Phloxes, Pentstemons, Sweet Peas, and other summer-flowering subjects that require rich soil and deep-rooting medium. If these conditions are provided, and a good mulching given the crops, they will the better withstand drought. In many gardens some ground, alteration is taking place at this season, such, for instance, as the formation of new shrubberies. In certain cases it is useful to remove soil from the flower-beds and utilise it for the shrubberies. Those beds or borders in which it is impossible to alter the rotation of crops, and, therefore, have to be used for similar plants year after year, become partially worn out. The old soil should be taken out to a depth of at least 2 feet 6 inches. If the natural soil is of a heavy nature, a layer of broken bricks or similar material, to the depth of 4 or 6 inches, should be placed in the bottom of the trench. Cover this layer with some of the coarsest soil or long, fresh manure. The best soil for filling the beds is loam cut from an old pasture and stacked for 12 months before use. There will be less trouble with weeds if the soil has been stacked for this period. If the loam is of a fairly fibrous nature, little else will be required during the first season. If, however, it is of a heavy, tenacious character, some well-decayed vegetable matter and coarse road sand or rubble should be employed to lighten it. Make the soil firm in the trench, and place sufficient, so that it will be fairly level when it has settled. If the ground is soft when this work is done, stout boards or planks should be used to support the traffic.

Transplanting shrubs.—Whenever the weather permits, opportunity should be taken to push on with this work. Small plants may be removed now without much trouble, but in the case of large specimens, a good ball of earth must be kept intact about the roots. In all cases the soil should be forked up deeply before placing a tree in its new position.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Forewords.—In giving directions for the management of kitchen gardens, I shall be guided by work done at Windsor under my own direction. But it must be borne in mind that soils and situations are important factors in growing crops of all kinds; therefore, every gardener



must determine for himself how far such circumstances must affect his own practice.

Seeds.

Prepare and despatch the orders for seeds as soon as possible. Select a few novelties for trial, but do not discard proved varieties until the new kinds have been tested.

Potatoes.—Much of the success with this crop depends upon the proper selection of the seed tubers. It is not too early to place sets of the early varieties in trays or shallow boxes. Select tubers of a moderate size, and place the boxes in a cool, dry shed, where there is plenty of light and air. In such conditions the tubers will form short, stout shoots. It is a common mistake to place seed Potatoes in too much warmth. May Queen, or a similar variety may be planted as early in January as possible, putting them in a cool pit in light, rich soil 12 inches in depth. Make the rows 20 inches

apart, and place the tubers 10 inches apart in the rows. Plant them so that the young shoots are just covered with the soil, taking care not to injure or break them. When the shoots appear above the ground, afford ventilation to keep the growths short and sturdy.

French Beans.—Sow seeds in 7-inch pots, and cultivate the plants in a temperature of 65°. Under proper treatment pods should be ready for gathering about January 25. Three-parts fill the pots with rich soil, and sow six or seven Beans in each pot. When the young plants are a few inches high, they should be earthed-up and staked. Syringe them frequently. Ne plus ultra and Osborne's Forcing are old and good varieties for this early crop.

Cauliflower.—If the stock of autumn Cauliflower is short, a sowing of some early variety should be made about the middle of January. Raise the plants on a hot-bed, and place them close to the glass. If the young plants are pricked off as soon as they are large enough, and afforded liberal treatment, they will be ready for planting on a south border in the open early in April.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Fruit trees in pots.—Most kinds of fruit can be successfully cultivated in pots. Their chief requirements include a lofty, well-ventilated house, even temperatures, regular and careful watering and feeding, and a little extra attention during the flowering period. The best compost for fruit trees in pots is one consisting of three parts fibrous loam to one part leaf-soil, old mortar rubble and dry cow dung. Repotting should only be done every second or third year, but the trees should be overhauled in October, for the purpose of making the drainage



good and applying a liberal top-dressing to those trees not requiring repotting. The soil should be rammed very firm in the pots. I append lists of varieties specially suited for this form of cultivation.

Plums.—The best twelve varieties in their order of ripening are as follow:—Brandy Gage, Oullin's Golden Gage, Early Transparent Gage, Early Green Gage, De Montfort, July Greengage, Transparent Gage, Golden Transparent Gage, Kirke's, Jefferson, Late Orange, and Coe's Golden Drop. The house should be closed and a temperature of 40° to 45° maintained at night, rising to 50° when the trees are in flower. At that stage the atmosphere should be kept moderately dry, giving as much air as is possible without creating draughts or unduly lowering the temperature. Pollination should be done each day about noon, when the pollen is dry. When the fruits have set, the temperature may be again raised 5°, and later, when the fruits have formed stones, hard forcing may safely be practised until the fruits begin to colour. When that stage is reached, a drier, cooler atmosphere should be maintained in the house, with plenty of air, for if allowed to ripen in a hot, moist atmosphere, the fruits have little flavour.

Apricots.—Moorpark or Hemskerk are the best varieties for pot culture; they may be treated in the same manner as advised for Plums.

Cherries.—The best twelve Cherries are: Early Rivers, Belle d'Orleans, Bigarreau de Schreken, Bigarreau Napoleon, Frogmore Early Bigarreau, May Duke, Governor Wood, Noble, Elton Heart, St. Margaret, Black Eagle, and Black Tartarian. Cherries require a division to themselves, as the trees will not stand fire-heat

until after the stoning stage. The house may be closed, and a temperature of 40° to 45° maintained at night, but this must not be exceeded until the trees are in flower, when it may be raised 5° during severe weather. It is wise to let the atmospheric temperature fall 5°, as too much fire-heat causes the buds to drop. On bright days the house may be shut up and syringed about 1 p.m., so as to make the most of the sun-heat. Syringing must be discontinued when the fruits commence to swell for the second time, directly after stoning, or many of them will split.

Peaches and Nectarines.—All the varieties usually grown under glass will succeed well in pots. These I find very useful if grown in the same house as permanent trees, materially helping to maintain a supply and greater variety.

PUBLIC PARKS AND GARDENS.

By W. W. PETTICREW, Superintendent of City Parks, Cardiff, Glamorganshire.

Park Reading rooms.—Park authorities who have adopted the Public Health Amendment Act, 1907, have the right to put into operation many important and useful powers which, in most instances, have been allowed to remain latent. From the educational



point of view, by far the most important of these is the right to build and maintain reading-rooms in public parks. The far-reaching possibilities contained in this provision of the Act can hardly be realised on a first consideration. *Purposes to be served.* As a rule a reading-room is associated in one's mind with an institution where idle people congregate to read and discuss the daily and weekly newspapers, together with the gossip of the locality. This is not the conception we have of park reading-rooms. If public money is to be spent on these, then their aim and use should be entirely educational and newspapers and light literature should find no place within them. All the books and periodicals should have more or less reference to natural history, and especially to such departments of it as may be studied in the adjacent grounds of the park. Photographs, drawings, diagrams, specimens and models should all be called into use, with the same object in view, namely, to interest and enlighten the visitors. It is needless to point out what a help a reading-room designed and maintained on these lines would be to teachers requiring to give Nature study lessons to their pupils—material, books, and illustrations would all be at their command.

Cost of maintenance.—Such an institution as here outlined need not be a heavy drain on the financial resources of the parks department. In the first place it need not be open during the whole of the time the park is accessible to visitors nor during the whole year. In the second place, as a valuable adjunct to the free libraries, it would deserve support (both by way of material and money) from the sources whence these institutions derive their income.

The building.—Even the building used as a park reading-room could itself be made of considerable educational value. There are at present so few specimens of old-fashioned buildings, even in the ancient towns and cities—much less the modern ones—of this country that when premises are required for reading-rooms or similar purposes in the parks, they might well be constructed as models and examples of buildings typical of different periods of history, rather than according to modern ideas of architecture.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Sir THOMAS LEE, Bart., Burford, Surrey.

Affording water, &c.—Through lack of sunshine, many deciduous Orchids failed to complete their growth till late in the season, consequently they did not mature satisfactorily. Some plants, which should have shed their foliage several months ago, have their leaves still fresh and green in these circumstances, the plants require exceptional treatment. The greatest mistake possible is that of affording too much water at the root, with a view to forcing the



pseudo-bulbs to become plump and hard; such treatment is likely to destroy the roots. The best thing to do is to keep such plants on the dry side, and in a rather dry atmosphere of moderate temperature, admitting a little air on favourable occasions, especially during the warmer parts of the day. The student will do wisely if he passes over until the next time for watering any plants which, on examination, he has a doubt as to their being exactly wet or dry. In the warmest division (East Indian house), such evergreen epiphytal Orchids as *Aerides*, *Saccolabium*, *Renanthera*, *Angraecum*, and *Sarcochilus* require water in sufficient quantities to prevent loss of foliage. When the Sphagnum-moss on the surface assumes a whitish-green colour, it will show that water is required, therefore sprinkle the surface with a fine rose watering-can. The species of *Phalaenopsis* should receive similar treatment, but, in addition to sprinkling the surface moss, it is necessary to moisten around the sides of the baskets, where many of the roots cling. *Cypripediums* of all kinds will require water whenever they appear to be in the least dry. *Cattleyas* and *Laelias* require less moisture at the root now than at any other season, excepting those plants which are now making their growth or developing flower-spikes. The object is to induce the formation of roots, but not growth, and, to do this, afford just sufficient water as will keep the pseudo-bulbs and leaves fairly plump. The tall-growing *Vandas* of the *V. tricolor* and *V. suavis* sections occupy the cooler end of the *Cattleya* house, and now that the plants are rooting freely they should be afforded sufficient water to encourage the Sphagnum-moss to grow luxuriantly. Terete-leaved Orchids, as *Vanda teres*, *V. Hookeriana*, *V. Miss Joaquim*, *Leptotes bicolor*, *Scuticaria Steelii*, *S. Hadwenii*, *Aerides vandarum*, *Dendrobium teretifolium*, *Angraecum Scottianum*, *Brassavola Perrinii*, *B. stricta*, several *Oncidium*s as *O. Sprucei*, *O. juncifolium*, and *O. rotundifolium*; *Luisia Psyche*, *L. volucris*, *L. zylanica*, and *L. Amesiana* require just enough water to prevent shrivelling. There are also many small-growing genera as *Paphinia*, *Polycynis*, *Burlingtonia*, *Walnawa*, *Compactetia*, *Promeneia*, *Rodriguesia*, *Ionopsis*, *Bulbophyllum*, and *Cirrhopetalum* that need to be watered occasionally to keep them from perishing. The various genera which occupy the cool houses, as *Odontoglossum*, *Oncidium*, *Masdevallia*, and *Maxillaria* are in a growing condition almost at all times; these should be watered often enough to keep the compost moist.

Temperatures.—The atmospheric temperatures of the houses at night during January should be as follow:—*East Indian house*, 60° to 65°; *Cattleya or intermediate*, 55° to 60°; *Mexican*, 55°; and *cool houses*, 50°. In exceptionally severe weather a few degrees less heat will be advisable. It matters little how much temperature rises during the day from sun-heat, provided there are proportional quantities of fresh air and moisture.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR JANUARY.

TUESDAY, JANUARY 4—Scottish Hort. Assoc. meet.

MONDAY, JANUARY 10—Roy. Hort. Soc. Exam. of Public Park employes, at 10 a.m. Surveyors' Inst. meet. United Hort. Ben. & Prov. Soc. Com. meet. Reading Gard. Assoc. Ann. Meet.

TUESDAY, JANUARY 11—Roy. Hort. Soc. Coms. meet. Hort. Club, lecture by Mr. Alexander, on "The Gardens of Ceylon," at Hotel Windsor, 6 p.m. Barr Memorial Com. meet. Brit. Gard. Assoc. Ex. Council meet.

THURSDAY, JANUARY 13—London Branch of B.G.A. meet.

FRIDAY, JANUARY 14—Ann. Meet. Kent County Chrys. Soc. at Lee Green, at 8 p.m.

THURSDAY, JANUARY 20—Gard. Roy. Benev. Inst. Ann. Meet. and Election of Pensioners at Simpson's Restaurant, Strand, 2.45 p.m. Friendly supper in the evening. Linnean Soc. meet.

FRIDAY, JANUARY 21—Roy. Inst. Lecture.

MONDAY, JANUARY 24—Surveyors' Inst. meet.

TUESDAY, JANUARY 25—Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Miss E. Armitage on "Intensive Cultivation of Vegetables in Madeira.")

SATURDAY, JANUARY 29—Ann. Dinner of Soc. Franç. d'Hort. de Londres at Café Royal.

MONDAY, JANUARY 31—Cantor Lecture at Royal Society.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—38°2'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, December 29 (6 P.M.): Max. 45°; Min. 42°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, December 30 (10 A.M.): Bar. 30°4'; Temp. 42°; Weather—Foggy.

PROVINCES.—Wednesday, December 29: Max. 47° N.W. Ireland; Min. 33° Durham.

SALES FOR THE ENSUING WEEK.

MONDAY and FRIDAY—

Dutch Bulbs, Herbaceous and Border Plants, Lilliums, &c., at 12; Roses, at 1.30, at 67 & 68. Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

New and rare Perennials, Miscellaneous Plants and Bulbs, at 12; Roses and Fruit Trees, at 1.30; trade sale of Japanese Lilliums at 2.30; Palms and Plants at 5, at 67 & 68 Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Imported and Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Rothamsted Experiment Station.

The important part played by the Rothamsted Experiment Station in the development of scientific agriculture is recognised throughout the world. Since its foundation by Messrs. Lawes & Gilbert in 1843 it has been in the foremost rank of agricultural research institutions. From the days when it played a leading part in solving the mystery of the source of nitrogen to plants, till the present time, it has continued to make contributions to knowledge which have advanced science and assisted practice. At no time during its long and distinguished career has the station been more active than it is

now in the investigations of the problems, particularly those appertaining to the soil, which concern the agriculturist and horticulturist.

This being so it might be supposed that, whatever was the case with younger and less proved institutions, the endowment of Rothamsted would be adequate for its requirements. Far from this being the case, it is a fact that the income available for the work of the station is less than that enjoyed by any one of the 52 separate experiment stations attached to the several states of the American Commonwealth.

Thus, although no State experimental station exists in this country, our only institution, which, by its work, has won for itself world-wide recognition, is allowed to depend for its resources on private munificence, on the support of one of the great City companies and on casual subscriptions. We are not aware that Rothamsted receives any support whatever from the State, but in any case, it must be admitted that for the work of Rothamsted to be curtailed for lack of funds is a reproach to the whole community.

Despite the fact that the society for extending the Rothamsted experiments was founded in 1904, and notwithstanding the activity of this society, the collected donations which it has received amount only to £500 and annual subscriptions to about £150.

It is impossible to believe that this is a measure of the recognition by the public of the services which the station is rendering. Rather it must be taken as one of the most striking of many indications that insufficient consideration is given to the pressing need for the investigation of problems which concern the national life and well-being. The State leaves such matters too much to private munificence, and the demands are so varied and heavy that our institutions are apt to suffer.

If Rothamsted were in any other country of the civilised world, it would receive an adequate measure of State assistance. The fact that it is not under State control should be no bar to its receiving such aid.

We claim to be a nation of practical men and not of pedants, and yet by heedlessness we fail to invest a few hundreds a year in an enterprise which, even now, handicapped as it is by lack of means, is equal to any experiment station in the world. We hope that before long Rothamsted may receive a substantial grant from the Treasury, and we would urge on the Board of Agriculture the importance of its taking the initiative in securing such a grant.

To state the objects for which funds are required is to demonstrate the urgency of the need. They include: an increase of land for experimental purposes; a permanent endowment for the bacteriological laboratory, equipment of the botanical and pathological departments, and also the investigation of animal nutrition.

The present staff has proved its capacity to elucidate in brilliant fashion the problems of the soil in relation to the growth of crops. It is certain that, with more adequate support, it would contribute in a notable degree to the solution of outstanding problems in other departments of agriculture and horticulture.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on Tuesday, January 11, in the Society's Hall, Vincent Square, Westminster.

LINNEAN SOCIETY.—The next general meeting of the Society will be held on Thursday, January 20, at 8 p.m. It will be devoted to a discussion on the origin of vertebrates, in which the following gentlemen will take part:—Dr. GASKELL, Dr. GADOW, Mr. GOODRICH, Professor STARLING, Professor MACBRIDE, Dr. SMITH WOODWARD, and Professor DENDY.

THE ROYAL BOTANIC SOCIETY.—We have received the following letter from the secretary of the Royal Horticultural Society:—

Subjoined is a copy of a letter to-day sent to the chairman of the Royal Botanic Society, in reply to the memorandum received by us from him, dated December 7, in connection with the efforts which have been made by the Royal Horticultural Society, with the object of securing a continuance of the Regent's Park Gardens and safeguarding the rights and privileges which the Fellows of the Royal Botanic enjoy at present therein.—Faithfully yours, W. WILKS, Secretary, December 22, 1909.

[COPY.]

S. Pembroke Stevens, Esq., K.C.,

Chairman of the Royal Botanic Society.

Dear Sir,—Having considered the Royal Botanic Society's memorandum of December 7, together with that which was drawn up at Mr. PEMBROKE STEVENS's request by the secretary of the Royal Horticultural Society on Wednesday, November 26, as a précis and record of the various proposals and suggestions which had been made on one side or the other at the meeting of the joint committee of the two societies, the President and Council of the R.H.S. wish, in the first place, to congratulate the President and Council of the R.B.S. upon their anticipated emergence from the critical position set forth in their circular of November 6. In view of such happy prospects, it does not appear to be either necessary or desirable to continue negotiations begun under an entirely mistaken idea produced by the circumstances which led to the circular of November 6. Also, it does not seem worth while to enter upon any of the points raised in the R.B.S. memorandum of December 7, except to say this, that the memorandum drawn up on November 26 by the secretary of the R.H.S. at Mr. PEMBROKE STEVENS's request was in no sense to be regarded as a scheme emanating from the R.H.S., but simply and solely as a memorandum incorporating the general tenour of the principal suggestions which had been made on one side or the other at the preceding meeting, and that it was not therefore surprising if a congeries of suggestions contributed by a number of persons should not represent a workable whole. It is needless to point out that such a memorandum binds neither society; it is merely a précis and record of the chief points brought under review, and suggested at the meeting. Should, however, the "difficulties" apprehended on November 6 unfortunately recur, the R.H.S. will be prepared to consider any reasonable proposal for preserving the Gardens for their present uses, and continuing to all Fellows and debenture holders of the Botanic all their existing rights and privileges therein.—Believe me to be, faithfully yours, W. WILKS, Secretary R.H.S. By order of the President and Council.

THE BOARD OF AGRICULTURE & FISHERIES.

—We are informed that Sir EDWARD STRACHEY, Bart., M.P., Parliamentary Secretary to the Board of Agriculture and Fisheries, has appointed Mr. E. N. BENNETT, M.P., to be his Parliamentary private secretary (unpaid), and Mr. EDWARD STRACHEY as his official private secretary.

"THE BOTANICAL MAGAZINE."—The issue for January contains descriptions and illustrations of the following plants:—

SYRINGA BRETSCHNEIDERI, tab. 8292.—Seeds of this species were introduced to Paris from Northern China about 1880. Examples in the Kew collection have been received from various sources under the diverse names *S. Emodii* var. *rosea*, *S. villosa*, *S. Josikæa* var. *eximia*, and *S. Bretschneideri*. According to Mr. N. E. BROWN, the species now described is most nearly allied to *S. Josikæa*, Jacq., but this latter species has glabrous leaves, and more deeply coloured flowers, therefore *S. Bretschneideri* is accorded the separate recognition given it by Mons. LEMOINE in 1900. The finest

not a showy species, *I. minuta* deserves to be included in Iris collections. Dr. STAFF states that the plant promises to be fairly hardy. The flowers are yellow, and the flowering growths are about 9 inches in height.

DIPelta VENTRICOSA, tab. 8294.—This species is a native of Western China, where it and *D. yunnanensis* were found by Mr. E. H. WILSON growing at an altitude of 8,500 feet above sea-level. *D. ventricosa* differs from every other species in having the purplish-red corolla widely inflated at the base. In the Coombe Wood Nursery of Messrs. JAS. VEITCH & SONS, this new species has formed a handsome shrub, and it promises to be a good garden plant, being quite hardy and of easy cultivation.

lip, the other parts of the flower being white. Mr. ROLFE, in his note now published in the *Botanical Magazine*, makes *Eria Lauchiana*, described by Dr. KRÄNZLIN, in *Gardeners' Chronicle*, June 25, 1892, p. 809, to be identical with *E. rhodoptera*, which species he describes as being nearest to *E. Dillwinii*.

REMOVAL OF MESSRS. DOBBIE & Co.'s BUSINESS FROM ROTHESAY.—The annual social meeting of the employés of this firm took place on the 17th ult., at Rothesay, there being about 125 employés and friends present. Mr. WM. CUTHBERTSON, J.P., who presided, explained the reasons why the removal of the business to Edinburgh had been determined upon. He related



FIG. 12.—MICHAELMAS DAISIES IN ALDENHAM HOUSE GARDENS
(See p. 4.)

(Photograph by H. N. King.)

example in the Kew collection is 10 feet high, and as much through, but it promises to become considerably taller. The flower panicles are 18 inches high and 12 inches across. The species flowers early in June, when most varieties of the common Lilac have faded.

IRIS MINUTA, tab. 8293.—This plant is known only in a cultivated state, but, says Dr. STAFF, it is generally assumed to be the plant described by FRANCIET and SAVATIER as *I. minuta*. The plate has been prepared from a plant obtained for the Kew collection from the Yokohama Nursery Co., in 1908, but Mr. W. E. LEDGER appears to have cultivated the species in his garden at Wimbledon some time previously. It is cultivated at Kew in a pot, in an unheated frame. Whilst

OURISIA MACROPHYLLA, tab. 8295.—This plant is a native of New Zealand, and was figured in *Gardeners' Chronicle*, June 19, 1909, fig. 172, from a photograph of a plant raised in the Royal Botanic Garden, Edinburgh, from seed obtained from New Zealand in 1907. The flower-buds on first opening are faintly pink, but the expanded flowers are white. The Edinburgh plant flowered in the middle of March in an unheated frame.

ERIA RHODOPTERA, tab. 8296.—This species was first described by Professor REICHENBACH in *Gardeners' Chronicle*, November 4, 1882, p. 586, from flowers obtained from Messrs. HENDERSON & SONS, Pineapple Nursery, Maida Vale. This species is remarkable for its crimson petals and

the history of the firm from the time when the late Mr. JAS. DOBBIE commenced to sell vegetable seeds in Renfrew, and after the business was removed to Rothesay, in 1875. The development has been so great that in order to carry on the present postal business it was necessary to remove to a centre having better postal and railway communications, for at Rothesay the last dispatch of parcels by post or rail is 4.30 in the afternoon. Other speeches were made by Provost MILLER and Councillor FIFE.

LEAMINGTON FLOWER SHOW.—The exhibition held at Leamington last year proved such a success, that the committee has made several important additions to the schedule for 1910.

Notwithstanding last year's show was a new venture, there remained, after paying all liabilities, a balance of £60. The guarantee fund of nearly £700 was not needed. For the present year four challenge cups, each of the value of 25 guineas, including one from the Mayor, Mr. ALFRED HOLT, have been presented to the Society. These will be awarded respectively, for the best non-competitive exhibit, a collection of fruit, a display of Roses occupying 12 feet by 4 feet, and for 26 distinct kinds of hardy garden flowers. Another cup of lesser value is offered for four dishes of fruits. A first prize of £20 is offered for a group of plants. The officers include the Mayor, who is president, and several borough councillors. The show will take place in the Victoria Park, Royal Leamington Spa, on Wednesday and Thursday, July 27 and 28. The secretaries are Councillor H. V. RICHARDS and Mr. LEO RAWLINSON. Entries for the exhibition will be received by Mr. J. T. HAYES, superintendent of the Leamington parks and gardens.

A NEW ROSE—"ENTENTE CORDIALE."

Among various Roses chronicled in the *Revue Horticole* as having been introduced into commerce last year by M. PERNET-DUCHER, of Vénissieux, near Lyons, is a Hybrid Tea named Entente Cordiale. Its parents are Mme. Abel Chatenay and Kaiserin Augusta Victoria, and the seedling is said to possess the vigour and floriferousness of the former variety. The flowers are large, full and globular, cream or "sulphur" white, with the tips of the petals lightly tinted with carmine.

THE SAND DUNES OF NEW ZEALAND form the subject of a report by Dr. L. COCKAYNE to the Government of the Dominion, from which we learn that over 300,000 acres of land in New Zealand are covered with moving sands. These figures will doubtless come as a surprise to most persons, even to those familiar with the sand dunes of Europe. The New Zealand sand dunes are not confined to the coast districts, though these are by far the most extensive. There are 290,000 acres in the North Island, and nearly 184,000 acres in the Auckland district alone. Dr. COCKAYNE's report deals with the whole subject, as to causes, effects, and reclamation results obtained in various countries. In New Zealand hitherto the losses have far exceeded the gains, mainly in consequence of over-grazing and burning the vegetation. The principal native dune plants are: *Spinifex hirsutus*, *Scirpus frondosus*, *Euphorbia glauca*, *Carex pumila*, and *Calystegia Soldanella*, which are sand-binders; and *Coprosma acerosa*, *Pimelea arenaria*, *Cassinia leptophylla*, *C. fulvida*, *C. retorta*, *Festuca littoralis*, *Calamagrostis Billardieri*, and *Scirpus nodosus*, which are sand-collectors. Dr. COCKAYNE has come to the conclusion that "the final treatment of (New Zealand) dunes should assuredly be afforestation." The report is illustrated.

EUPATORIUM RAFFILLII.

This plant will prove one of the most valuable members of the genus. It requires warm greenhouse treatment, and flowers in late winter, like *E. ianthinum*, to which it is closely allied. Cuttings of the young shoots root readily in a close, propagating frame during spring and summer. The earlier-rooted plants should have the points removed when they are 4 or 5 inches in height in order to induce them to form bushy plants. The later-rooted cuttings should be grown on without stopping, and they will then produce each a large terminal flower-head. The potting soil may consist of equal parts fibrous loam, peat, leaf-mould, and plenty of coarse sand. Large bushes may be obtained by shortening the growths after flowering, shifting them into

6 inches across, whilst the flower-heads of the side shoots vary according to the vigour of the shoots. Their colour may perhaps be best described as purplish-lilac.

E. Raffillii is supposed to be a native of Central America, but its origin is uncertain. For years it has been cultivated in the Birmingham Botanic Garden as *E. ianthinum*. A. O.

FLORISTS' FLOWERS.

THE NEW METHOD OF GROWING SWEET PEAS.

The old method was to draw out a drill with the hoe in the garden, sow the Peas along the bottom of it, cover up and leave the rest to



[Photograph by C. P. Raffill.]

FIG. 13.—EUPATORIUM RAFFILLII: FLOWERS PURPLE.

larger pots when they have started into growth again.

Compared with *E. ianthinum*, the subject of this note is much more vigorous in growth, attaining a height of 3 feet or more in one year. The young branches, leaf-stalks, veins on the undersides of the leaves, and the involucre bracts are all freely clothed with red-brown hairs, which give the plants a distinct and ornamental appearance. The thick, fleshy leaf-stalk averages 3 inches in length, the leaves being 7 inches to 8 inches long, and 5 inches to 6 inches wide, dark glossy green above, pale green beneath, and very hirsute. The central terminal flower-head (see fig. 13) is often

chance and Nature. The new method is as follows: In the month of January pots are prepared and filled with a good loamy compost and the seeds are sown with every care in a temperature of 50° to 60°. Some growers prefer sowing single seeds in small 60's, others prefer to put four or five seeds in large 60's or 48's (5-inch pots). As soon as the plants get an inch or so in height, the pots should be placed near the glass and in a light, airy situation. When the plants are 3 inches tall, small twiggy growths of hazel or other wood are placed round the pots to keep the plants on their feet and prevent them bending over.

Whether the tops should be pinched or not is

PUBLICATIONS RECEIVED.—*Crop Bulletin 103*. (Ontario Department of Agriculture, Bureau of Industries, Toronto) (November, 1909.)—*Report of the Farmers' Institutes of the Province of Ontario, 1908*. Part I. (Published by the Legislative Assembly of Ontario.)—*Cultivation and Preparation of the Calabash Pipe Gourd*, by Joseph Burt-Davy. Being a reprint from the *Farmer's Bulletin*, No. 95. (Published by the Transvaal Department of Agriculture.)—*The Sunflower: Its Uses and Cultivation*, by Joseph Burt-Davy. Being a reprint from the *Farmer's Bulletin*, No. 83. (Published by the Transvaal Department of Agriculture.)—*Prickly Pear and the Spineless Cactus for Stock Food*, by Joseph Burt-Davy. *Farmer's Bulletin*, No. 90. (Published by the Transvaal Department of Agriculture.) (The Government Printing and Stationery Office, Pretoria.)

a question often debated. The best answer is this: Study the plants, and if laterals break near the ground leave well alone. Some sorts seem inclined to run up and not break; these should certainly be pinched when 4 inches high. In March the plants must be removed to a cold frame and gradually hardened for planting as early as possible in April. They can be grown well in clumps or lines, whichever suits the convenience of the garden. Clumps are very often made in the following fashion:—Four long stakes are placed in the prepared ground in the form of a 20-inch square. Galvanised sheet wire netting is obtained and cut into 6 feet lengths. These are put round the stakes in the form of a circle and made secure to them. Four, never more than six, plants are planted round the outside of the wire circle, and the growths are trained up straight and regularly all round. By having the posts or stakes 9 or 10 feet high, and adding circles of wire as the plants grow, these latter easily reach that height and become magnificent objects.

It is well that this new plan of growing has come into practice, because reliable seeds of the best Spencer varieties, which are all the rage nowadays, are scarce, and therefore expensive.

As to the best varieties, there can be no better guide than the recommendation of the Floral Committee of the National Sweet Pea Society. Their principal recommendations are:—*White*: Etta Dyke and Nora Unwin. *Primrose*: Clara Curtis and James Grieve. *Cream pink*: Constance Oliver. *Pink*: Countess Spencer. *Orange*: Helen Lewis. *Carmine*: John Ingman. *Crimson*: The King. *Lavender*: Frank Dolby and Mrs. C. Foster. *Mauve*: The Marquis. *Picotee-edged*: Elsie Herbert and Mrs. C. W. Breadmore. *Bicolor*: Mrs. A. Ireland. *Marbled*: Helen Pierce. *Enthusiast*.

LATE CHRYSANTHEMUMS.

TWENTY years ago it was a difficult matter to have Chrysanthemums in flower at this season, principally because suitable late-blooming varieties were scarce. Now, however, there is an abundance of first-rate varieties that flower almost naturally in December. They include almost all shades of colour, and the large selection provides a difficulty in knowing which to grow. The following list has been compiled as representing some of the best for the purpose. White-flowered sorts are, perhaps, most appreciated, and it is difficult to name one better than Niveum, which bears pure white blooms on stiff stems. Mme. R. Oberthur is also a white variety, the lightly-curling florets adding to its charm. The Queen is another desirable white sort, as also is Florence Davis, although the latter has a tinge of green in the central florets. Mme. Edmund Roger is even more pronounced in its green tinge on a white ground. For those who prefer a white bloom with a creamy tint, nothing is finer than Mrs. J. Thompson: the loosely-incurving blooms are produced on extra stiff stems. Another creamy-tinted variety is Princess Victoria, a shapely bloom with reflexing florets. Western King is well known, and it cannot be discarded. Queen of the Exe is white, with a pleasing pink tinge.

Amongst yellow kinds, Yellow Thompson is valuable for those who need a flower not particularly deep in its tint, but W. H. Lincoln, Negoya, King of Plumes, François Pilon, and Allman's Yellow are all deeply tinged; in fact, most of them are orange-yellow in tint.

Amongst brightly-coloured sorts may be mentioned Violet Lady Beaumont and Cullingfordii, still a brilliant variety. Amongst bronze-shaded sorts, Lord Brooke stands prominent with its extra stiff stems. Tuxedo, of terra-cotta bronze shade, is still desirable, although quite old. Beauty of Sholing, bronze and gold, with its reflexing florets, is attractive. *E. Molynaux*.

VEGETABLES.

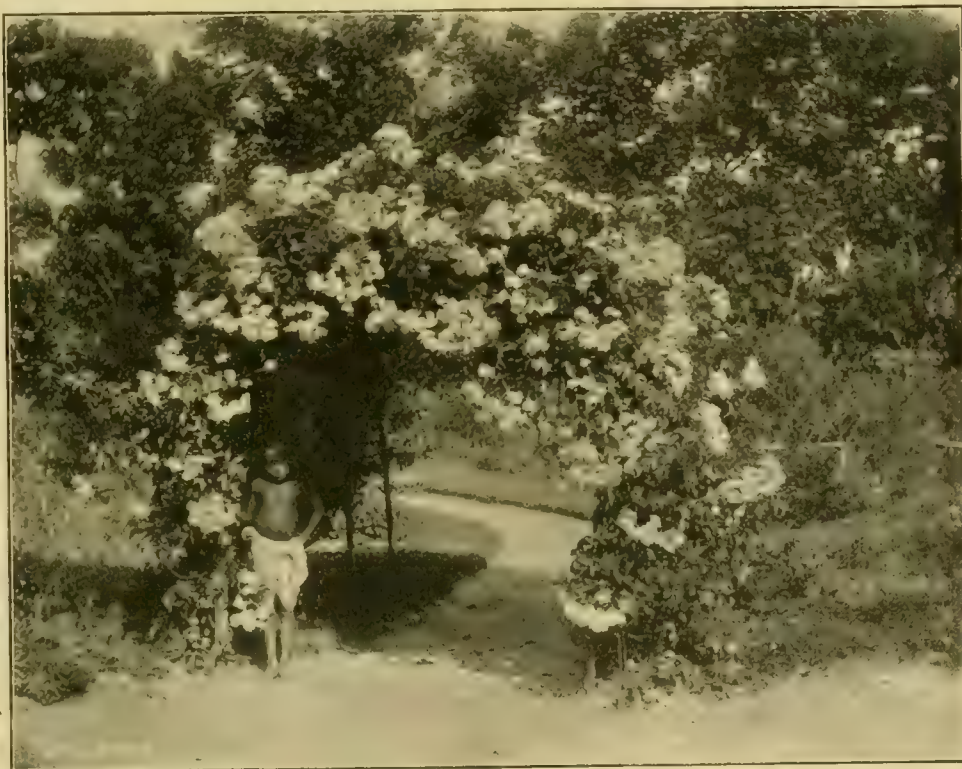
LETTUCES FOR A SUCCESSION.

ALTHOUGH the varieties of Lettuce are exceedingly numerous, the three kinds mentioned below are, under proper culture, sufficient to provide a succession for 12 months. With a few frames provided with a little bottom heat, it is possible to produce in 12 weeks splendid heads quite equal to any imported at this season. The cost is small, for very little heating material is required, and as soon as the Lettuces are cut, the frames are available for other crops, such as Marrows.

Golden Ball.—This is one of the best varieties for early supply. It is a quick grower, and forms very firm hearts under glass. The leaves are very tender, and all of them can be made use of. The first sowing should be made at the end of December in medium heat. Sow the seeds thinly in boxes, for, when planted thickly, the seedlings become drawn, and this must be

seemles the Drumhead type, but is quite distinct. Grown on rich ground, the plants attain to a very large size; they are, however, not coarse, but tender and crisp. For withstanding the hot and dry weather without bolting this Lettuce is especially valuable. There may be others as good, but none better. The leaves are curly, and slightly tinged with reddish-brown on the edges. The first sowing should be made during the first week of March, and successional batches sown till the end of June. By sowing early in August and transplanting in frames this variety will give a late but useful crop.

Marvel.—For autumn and winter supplies this will be found an excellent variety. The plant is very hardy, and when well grown is adapted for lifting and placing in frames. The outside foliage is brown, the heart leaves being of a creamy tinge. The first sowing should be made in July, and the second about the end of August. This last sowing will provide plants for lifting into frames or cold houses. This second sowing is too late for gardens in the north Midland



[Photograph by H. F. Macmillan.]

FIG. 14.—*SOLANUM WENDLANDII* IN THE PERADENIYA BOTANIC GARDENS, CEYLON.

avoided. As soon as the seedlings are large enough they should be transplanted into other boxes. An early vinery or Peach-house is a capital place for them after they are pricked off. Keep them as near to the glass as possible to ensure sturdiness. Meanwhile, the frames should be got in readiness for their final planting. The hot-bed should be made of two-thirds leaves and one-third stable manure; the leaves will counterbalance the great heat of the manure, making the bed milder and more lasting. About 6 inches of good soil on the bed is required for planting. It should consist of half rotted manure and half soil, well mixed together. The surface should be not more than 6 inches from the glass. Sow for succession in January, and again in February, for earliest outdoor planting on warm borders. When the earliest outdoor batch is planted at the end of March and beginning of April, it will be found to be a capital plan to cover the border with herring nets, as these will keep away the sparrows and other birds, and act as a protection against frost.

Supreme.—This variety is one of the finest Cabbage Lettuces for a summer crop. It re-

counties, where it is best done from the beginning of July until a fortnight later. *E. C. Pooley, Gnaton Gardens, Yealmpton.*

SOLANUM WENDLANDII IN CEYLON.

THE giant among the climbing species of *Solanum* is *S. Wendlandii*. It is a handsome plant, with large, deeply-cut, succulent leaves, and is a striking object when in full blossom, bearing large trusses of lilac-blue flowers, with large, yellow anthers. It is a vigorous grower and a free bloomer, thriving best in an open, sunny situation, without shade, and hence is especially adapted for growing on arches, trellises, &c. The plant is a native of Costa Rica, and is named in honour of Dr. Wendland, who first sent it to Kew in 1882. It flowered there in 1887, when it was figured in the *Botanical Magazine* (t. 6914). In 1894 it was introduced to the Peradeniya Botanical Gardens, and it is now a popular ornamental plant in Ceylon, where it thrives from 1,000 feet to 5,000 feet above sea-level. *S. Wendlandii* is a familiar stove plant in Britain.

LYCORIS AUREA.

LYCORIS aurea, Herb., is a well-known and beautiful Chinese species. It was introduced from China towards the end of the eighteenth century. In company with *Lycoris radiata*, it is much cultivated by the Chinese as an ornamental plant, but, unfortunately, with us it is anything but a free flowerer.

Though it is in cultivation around practically every city and village in Western Yunnan, I only found it really wild in two districts. First, to the north-west of the city of Tengyueh-ting, where it occupied several miles of an old lava bed; secondly, in the Salwin valley, about 26° 30' N., growing amongst dwarf scrub and always below the high-water level of the rainy season floods. In this latter place I obtained the photograph reproduced in fig. 15. *G. Forrest.*

NOTES FROM A "FRENCH" GARDEN.

THE rains have greatly impeded all work in the "French" garden, and the soil for placing in the frames is in a very bad condition.

We have, however, started hot-beds for forcing Radishes, Carrots and Lettuces. When one bed is completed and the soil is made level in the frames, we shall sow the Radishes (Early Forcing French Breakfast) at the rate of a $\frac{1}{2}$ ounce of seeds to each frame. The Carrots (Early Parisian) will be sown at the rate of one-sixth ounce of seeds per frame, and they will be covered with 1 inch of finely-sifted soil lightly pressed down.

Next, six rows will be marked out for the Lettuces and the frames covered with the lights. Four or five days later, when the fermentation of the manure begins—which may be seen by the drips on the glass—the Lettuces (Little Black Gott) will be planted, putting 42 plants in each light. These Lettuces have been grown under the cloches during the winter. They are not set very deep in the soil, as this would cause decay in the bottom leaves.

If the Cauliflowers have not grown satisfactorily during the winter, seeds of the variety Driancourt can be inserted among the Carrots instead of Radishes. If Lettuces are required for a succession, sow seeds of All the Year Round and Paris White in the same way as the Cauliflowers. These crops, however, will be too late to command a remunerative profit when grown for market.

The seedlings must be pricked out late in January on a mild hot-bed to inure them to the ventilation they will require in February.

When preparing the hot-beds, it is necessary to keep sufficient frames and lights in hand for the raising of seedlings in spring. For a garden with 400 lights and 2,000 cloches, 36 lights will be ample for the purpose.

The making of the hot-beds, provided everything was got ready last month, should not take more than four weeks in favourable weather.

We are planting in some of the cold frames 25 Lettuces of the variety Passion, and, in others, 30 of the variety Little Black Gott. Before planting them, Radish National, a round, white-tipped variety, bigger than the French Breakfast, is sown in the frames.

Carrots are never sown in cold frames with Lettuces, as they require much space before the Lettuces are ready for market. Some growers plant, in February, eight Cos Lettuces (Paris Grey) in cold frames among the Cabbage Lettuces, with good results.

As soon as cloches are at liberty the Cos Lettuces, Green Flat of Paris, are pricked out for the third time, five being planted under each cloche. This operation is often neglected, but when practised better plants are obtained.

As soon as possible, we shall prepare the out-of-door beds, which were dug early in November, for planting the Lettuces Passion and Palatine. When the beds are raked over, Radishes or

Spinach will be sown, and a layer 1 inch deep of decayed manure will be placed over the seeds.

We are forking the soil about and mulching Strawberry runners planted in September. These will form plants for forcing in 1911. *P. Aquatias.*

CULTURAL MEMORANDA.

WINTER BEGONIAS.

It is well-nigh impossible to over-praise the Gloire de Lorraine type of Begonia as a decorative subject for the Christmas season. Plants 2 or 3 feet in height, and nearly as much through, in 6 or 8-inch pots with their coral

colour. *Alba grandiflora* provides a good white, and is very floriferous, and Turnford Hall is a white variety slightly shaded with pale pink. It is surprising the length of time these varieties remain of decorative use when treated properly. Aphis may prove rather troublesome to them unless the structure is fumigated every alternate week.

When plants of the Gloire de Lorraine type have finished flowering they should have their growths cut back to within 6 inches of the base, and the water supply much reduced. If syringed frequently they will produce young shoots from the base, and these form the best cuttings. These root easily in sand or leaf-soil, either in pans, pots or dibbled in a propagating box. They should



[Photograph by G. Forrest.]

FIG. 15.—LYCORIS AUREA GROWING IN THE SALWIN VALLEY, CHINA.

pink flowers, almost hiding the foliage, show up well under artificial light. They need much care in watering, and must not be placed in positions exposed to cold draughts. I find the plants keep much better when elevated on pots, in an atmospheric temperature of 55° at night, so that the warm air can freely circulate between them. The original Gloire de Lorraine compares with any of its rivals as regards brightness of colour, although the newer variety, "The King," has much to recommend it, being more vigorous, and having larger, though less pendulous, flowers. Mrs. L. de Rothschild is a very free-flowering variety, and has larger flowers than the type, but they are lighter in

be kept moderately moist and close until rooted. Let the shoots be some 2½ inches long before taking them off.

The new hybrid winter-flowering section, partly bulbous and partly fibrous-rooted, and including such varieties as Winter Cheer, John Heal, Mrs. Heal, Elatior, Winter Glow, Clibran's Pink, and Beauty of Hale are all more or less beautiful in their varied colours. Though not of such a decorative habit as the Gloire de Lorraine type, they add a brightness to an intermediate stove during the winter months. These require more careful management than the Lorraine type to keep the plants from year to year, and they are not quite so easily propagated.

But with judgment in the watering during their resting season they produce, from April onwards, a fair quantity of growths from the axils of the leaves, which, if rooted, form good plants by the following winter.

Another winter and spring-flowering Begonia is *Gloire de Sceaux*. This bears rosy-pink flowers very freely, and for its highly ornamental foliage alone deserves a place in the stove. President Carnot is a strong grower, bearing huge panicles of rosy-pink flowers, which show to much advantage when trained to the roof. By rooting cuttings at short intervals it is possible to have this variety in bloom throughout the year. April and May are the best months to propagate all the Begonias I have mentioned. *J. Mayne.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE EFFECT OF GRASS ON TREES.—When I first read Mr. Spencer Pickering's account on the effect of grass on trees, in the report of the Woburn Fruit Farm, I was much struck by the fact that the subject had, apparently, been so little investigated; because, to the forester and arboriculturist, it is of the very utmost importance to know how to deal with land already overgrown by grass, or liable to become so, before newly-planted trees are established. Although Mr. Pickering's observations have been confined mainly—if not entirely—to fruit trees, and I do not wish in any way to controvert them, I am sure that they are not equally applicable to many forest trees, to all kinds of soil, or to all kinds of grass. I never take a walk in my plantations without noticing that, though some trees, of which Sycamore, Wych Elm, and Ash are excellent examples, remain for years without making any progress in grassy land, yet, that self-sown seedlings of the same species often come away vigorously under similar, or apparently similar, conditions; whilst many Conifers, among which Corsican and Scots Pine are notable instances, not only do not seem to mind the grass, but actually grow more vigorously after being planted out of it, than they have done in my nursery where Corsican Pine, at any rate, grows very slowly and badly, and seems, in its infancy, to suffer from chlorosis, due to the excess of lime, in the form of carbonate, which is present on the oolite formation. It would be unsafe to form any opinion on this involved and difficult question from experience gained only on such a soil as mine; but, until we do know a great deal more about it, we shall not be in a position to estimate the approximate cost of establishing plantations of hardwoods on soils subject to grass. The cost of keeping the ground clean would usually, in the case of economic plantations, be prohibitive; whilst, in the case of fruit trees, it may, and probably would, be repaid by the production of fruit. At the same time, I must say that I have seen, in Kent and Buckinghamshire, Cherry orchards containing trees of great size and age laden with fruit, though the land was and always had been in grass, and it is obvious that, whatever may have been the effect of grass on park trees in their youth, many of the very finest and largest trees in the kingdom grow in grass. Some of the best orchards in Herefordshire are also in grass. It is, therefore, much to be hoped that some carefully-planned experiments should be made and continued for at least 10 years on various kinds of soil; and with trees of as many genera as possible, with the object of throwing more light on this most important question. The Duke of Bedford has already, at Mr. Spencer Pickering's suggestion, made a beginning, and I have reason to hope that the Royal Agricultural College at Cirencester will carry out similar experiments. *H. J. Elwes, Colesborne.*

WART DISEASE OF POTATOS.—In a report which recently appeared in the *Times*, of experiments made on behalf of the Board of Agriculture at various centres, the following varieties were recommended for cultivation in infected areas:—Langworthy, What's Wanted, Golden Wonder, Sutton's Abundance, Findlay's Conquest and Snowdrop. The variety last named had failed in some cases, owing, it is supposed, to the seed tubers not being true to name. This is not surprising, because Snowdrop resembles the variety Sir John Llewellyn very closely, although here Snowdrop is certainly the better of the two. The following varieties were

it, and grow no others where the land is infected. It will be necessary in future to exercise great care in purchasing seed Potatoes. Fortunately it is not necessary to purchase tubers in all cases for I have a stock of Snowdrop which I have grown for 26 years, and it shows no signs of deterioration; if the cultivation is good, the soil suitable, and due care is taken of the seed tubers, it will be found in most instances that nothing is gained by obtaining seed from other sources. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

APPLE MAGGIE GRIEVE.—In the notice of the exhibition of Apples at the Woburn Fruit Farm (see p. 432), it is stated that amongst the best varieties was that known as Maggie Grieve. This is one of the many Apples raised by myself. It is a first-class culinary variety and a free bearer. The fruits are of a rich crimson colour. This variety should be in every collection. *Jas. Grieve, Redbraes, Edinburgh.*

GARDEN PICTURES.—Not only has gardening undergone great developments in recent years, but several artists have made a speciality of garden subjects, and some well-illustrated books have been published on English gardens by the three-colour process. One of the best of these books is that by Mrs. Allingham, who has long been known as an extremely clever painter of garden scenes; but her drawings now command very high prices. Not so are the beautiful water

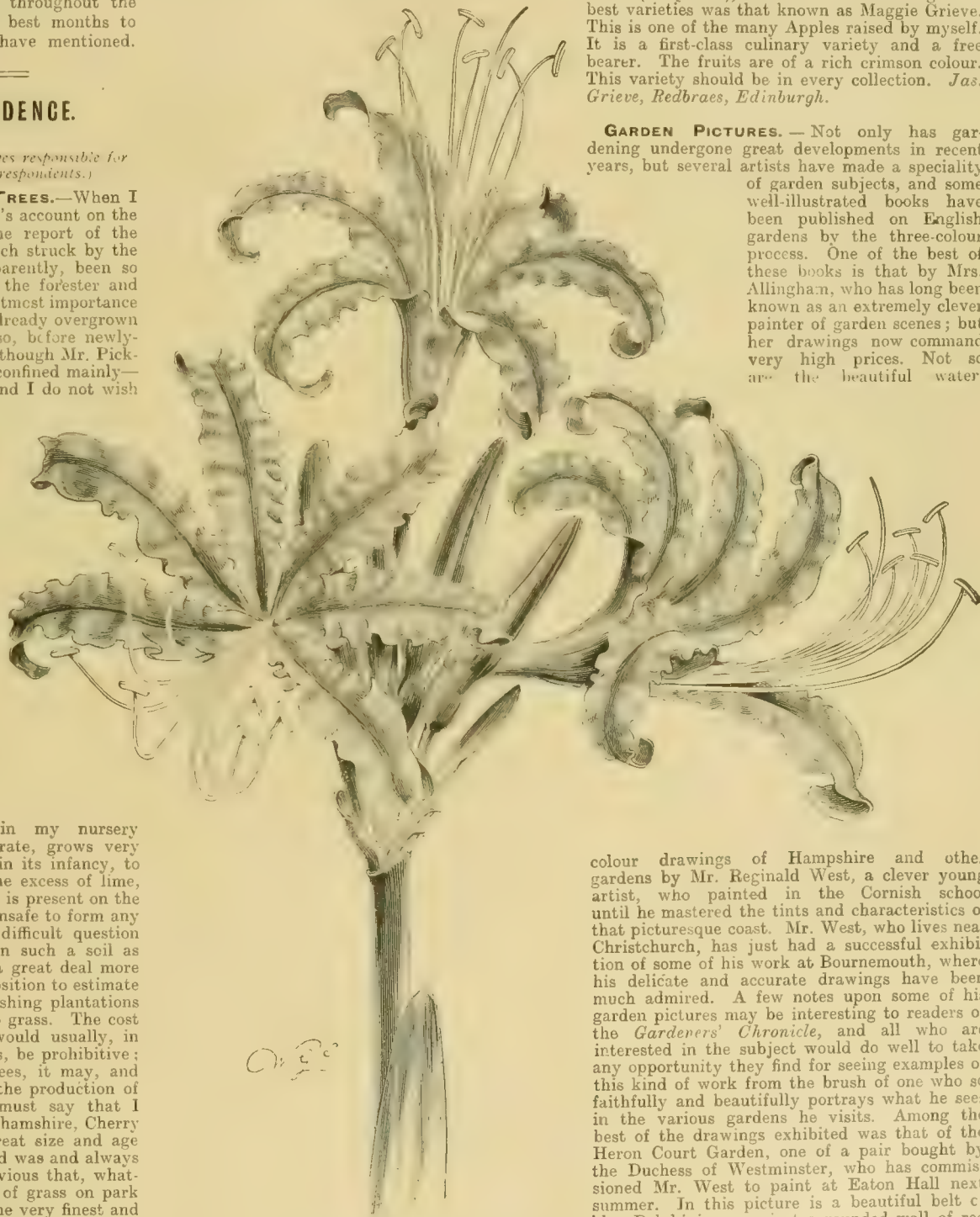


FIG. 16.—INFLORESCENCE OF LYCORIS AUREA:
FLOWERS ORANGE-YELLOW.
(See p. 12.)

found to be infected with the disease, and should not be planted on infected land:—Up-to-Date, Northern Star, King Edward VII., Eldorado, Royal Kidney, British Queen, Talisman, Epicure, Sharpe's Express, May Queen, and Ninety-fold. This information is useful, as the disease may eventually be stamped out if we can find varieties that are immune to

colour drawings of Hampshire and other gardens by Mr. Reginald West, a clever young artist, who painted in the Cornish school until he mastered the tints and characteristics of that picturesque coast. Mr. West, who lives near Christchurch, has just had a successful exhibition of some of his work at Bournemouth, where his delicate and accurate drawings have been much admired. A few notes upon some of his garden pictures may be interesting to readers of the *Gardeners' Chronicle*, and all who are interested in the subject would do well to take any opportunity they find for seeing examples of this kind of work from the brush of one who so faithfully and beautifully portrays what he sees in the various gardens he visits. Among the best of the drawings exhibited was that of the Heron Court Garden, one of a pair bought by the Duchess of Westminster, who has commissioned Mr. West to paint at Eaton Hall next summer. In this picture is a beautiful belt of blue Delphiniums against a rounded wall of red brick, carefully drawn and rich in tone. A "Garden near Christchurch" shows brilliant masses of Marguerites, yellow Mulleins, and tall Loosetrifes against a background of trees in all their summer glory. Mr. Reginald West is particularly happy in his pictures of Azaleas and Rhododendrons, and there are also several clever effects of Michaelmas Daisies and one beautiful bed of Tulips, which are exquisitely transparent in their rendering. Two or three of the views were taken in Mr. Prichard's nurseries, with the fine old Christchurch Priory in the distance.

The artist is becoming well-known for his drawings of topiary work, several beautiful specimens of which called for special attention at Bournemouth. His rendering of these old-fashioned closely-cut Yew and Holly hedges is very clever. One of the best of that series, a garden at Brockenhurst, had a circular pool of Water-lilies in the foreground, which was so sketched as to appear half cut off in the front of the picture. *H. S. T.*

WINTER BEANS.—I am forwarding a plant of Climbing French Bean, bearing a second crop of pods, also a small bundle of pods gathered from similar plants, showing the value of this variety for autumn and winter use. I have grown this Bean for many years, and have found it superior to any other kind for late supply. The seeds were sown in 3-inch pots on August 14, and the plants raised in an intermediate temperature until they had filled the pots with roots, when they were transferred to 5-inch pots. They were placed in their fruiting quarters about the middle of September; at the same time they were shifted into 8-inch pots, filled to a little less than half their depth. The compost consisted of two parts loam and one part manure from a spent Mushroom-bed and leaf-mould, with sufficient sand to keep the whole porous. They were arranged in single rows on either side of a span-roofed house, one plant in each pot, the stems being trained, at a distance of 1 foot apart, to the trellis. The first fruits were gathered on October 18, and since then I have gathered on 36 occasions. After November 14, the plants ceased bearing for a few days; then they developed fresh flowers in abundance, many being borne on the old fruiting spikes. I commenced to gather from this second crop on November 30, and have done so every alternate day since. The plants average 9 feet in length, and are healthy and strong. During the fruiting period, the roots are top-dressed with fresh compost, to which has been added a little soot, bonemeal and fertiliser. This is done about every 10 days, or as soon as the roots have grown through the previous top-dressing. The temperature of the house from the middle of September until the end of October is about 60° at night, and from 60° to 65° by day; but ventilation is freely afforded on all favourable occasions. During November and December, the temperature ranges from 57° to 60° at night-time, and from 60° to 65° by day. We never allow the hot-water pipes to become overheated, and we damp the atmosphere freely during favourable weather to prevent red spider. *G. Hatch, Cavenham Park Gardens, December, 1909.*

CHRYSANTHEMUMS.—Mr. Chas. Herridge states (p. 383) that the soil for the final potting should consist of "loam, pulled to pieces by the hands." I consider this a great waste of labour, and unnecessary for the production of good Chrysanthemums. Loam chopped with the spade is quite as good, and it is a ten times quicker method. He also writes, "place them in a temperature of 60° on a shelf in a cool greenhouse." A temperature of 60° would cause Chrysanthemum cuttings to become drawn and weak in their early stages. Then he says, "the next shift must be into 6-inch pots." I think few Chrysanthemum growers will agree with the practice of moving the plants direct from the thumb pots to 6-inch pots. Again, he writes, "they should be removed to a cold frame about the middle of March." This is rather a sudden change, and one likely to cause mildew and rust. Finally, in order to obtain a good, well-flowered, decorative plant, it is necessary to commence operations as early in the year as possible. *Jones Winchester, Windle Hall Gardens, St. Helens, Lancs.*

SCHEDULE RECEIVED.

Bournemouth Horticultural Society's spring show, April 5, 6. Secretary, C. W. Barrett, Lucerne, Fenton Road, West Southbourne, Bournemouth.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 16.—*Committee present:* Messrs. E. Ashworth, R. Ashworth, Arthur, Cowan, Cypher, Holmes, Keeling, Parker, Shill, Thorp, Ward and Weathers.

S. GRATRUX, Esq., Whalley Range (gr. Mr. Shill), exhibited a remarkably fine collection of rare Cypripediums, for which a Gold Medal was awarded. The group included *C. × Lyon*, a finely-shaped flower, with rich colouring in the dorsal sepal; *C. × Beryl West Point var.*, *C. × Leeannum Corona*, *C. × F. W. Ashton*, a form of *C. × eboracum* with a bold, well-marked dorsal sepal; *C. × Leeannum Corona West Point var.*, *C. × Thalia var. giganteum*, *C. × Priam*, *C. × Actæus var. Miss Cann*, the rare *C. "Mrs. Cary Batten"*, which is a form of *C. villosum*, and several choice forms of *C. × Archimedes* and *C. × San-ac-dere*. *C. × eboracum West Point* variety was awarded a First-class Certificate.

Mrs. S. GRATRUX received a First-class Certificate for *C. × Actæus var. A. J. Balfour*.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver-gilt Medal for a group of *Odontoglossums*, which included well-grown and well-flowered forms of *O. crispum*.

DREWETT O. DREWETT, Esq., Riding-Mill-on-Tyne (gr. Mr. Renwick), exhibited a number of Cypripediums. An interesting plant was seen in *C. insigne var. crassifolium*. The flower had indications of some influence other than that of *C. insigne*, and was not acknowledged by the Committee to be a variety of that species. *C. insigne var. Thompsonii* received an Award of Merit.

W. R. LEE, Esq., Heywood (gr. Mr. Corser), was awarded a Silver Medal for a group of Cypripediums, many of the plants having previously received Awards. *C. × Marjorie Lees var.* and *C. Charlesianum Lees var.* were voted Awards of Merit on this occasion.

J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), exhibited *Lælia anceps var. Ballantineana*.

CLIVE COOKSON, Esq., Wylam-on-Tyne (gr. Mr. Chapman), staged a group of plants, in which were three remarkable specimens of Cypripedium, viz., *C. × Leeannum var. Clinkaberryannum*, *C. insigne Sanderae* and *C. insigne puncto violacea*. A Silver Medal was awarded for the good cultivation seen in these plants. First-class Certificates were granted to *Odontoglossum × ardentissimum var. Phoebe*, *Odontoglossum × Clive*, a magnificent hybrid, the parentage of which is not recorded; and *O. crispum var. Chapmaniae*, a home-raised, spotted form of good quality. *Calanthe × Gildenii*, *C. × Harrisii*, and Cypripedium *Hera Oakwood var.* received Awards of Merit. A Silver-gilt Medal was awarded to the general display.

J. LEEMANN, Esq., Heaton Mersey (gr. Mr. Smith), exhibited Cypripedium *insigne var. Gloire d'Auderghem*, a distinct yellow form. The Committee conferred an Award of Merit.

R. LE DOUX, Esq., West Derby (gr. Mr. Fletcher), was awarded a Silver Medal for a group containing several distinct *Odontoglossums*, of which *O. crispum var. Miss Lawrence Hignett*, *O. c. Miss Florence Boundy* and Cypripedium *× eboracum Le Doux's* variety received Awards of Merit.

Mr. C. PARKER, Ashton-on-Ribble, was awarded a Silver-gilt Medal for a good group of Cypripediums, and Cultural Certificates for three well-grown specimens. This collection of plants came under the section shown by amateurs who grow without professional aid, and was a most meritorious display.

Messrs. A. J. KEELING & SONS, Westgate Hill, Bradford, exhibited a small group, in which was *Phaius amboinense*, a new plant, which received a Botanical Certificate.

J. T. CLIFTON, Esq., Lytham (gr. Mr. Float), was awarded a Silver-gilt Medal for a group of varied Orchids, including a large number of interesting botanical specimens. *Brasso-Cattleya Thorntonii var. Mrs. Talbot Clifton* was awarded a First-class Certificate.

J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), was awarded a First-class Certificate for *Odontodia × Bradshawia Beech's* variety.

Mr. H. ARTHUR, Blackburn, received an Award of Merit for Cypripedium *× Leeannum Arthur's* variety.

Silver Medals were awarded to H. J. BROMLOW, Esq., Rainhill (gr. Mr. Morgan); Mr. GALLOWAY, Great Horton, Bradford; Messrs. CYPHER & SONS, Cheltenham; O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers); the LIVERPOOL ORCHID & NURSERY CO., Gateacre, for exhibits of Cypripediums; and Messrs. MANSELL & HATCHER, Rawdon, Leeds, for a general display of plants.

Other exhibitors were A. WARBURTON, Esq., Haslingden; Mr. D. MCLEOD, Chorlton-cum-Hardy; and Mr. BIRCHENALL, Alderley Edge, P. W.

NATIONAL DAHLIA.

ANNUAL GENERAL MEETING.

DECEMBER 21.—The annual general meeting of this Society was held at the Hotel Windsor, Mr. E. Mawley, V.M.H., president, in the chair. The annual report was read by Mr. E. F. Hawes, joint hon. secretary, and the financial statement by Mr. C. E. Wilkins, treasurer.

EXTRACTS FROM THE ANNUAL REPORT.

"It had long been felt that there was no room for two societies devoted to the interests of the Dahlia, and the committee are glad to be able to record the amalgamation in December last of the London Dahlia Union with the National Dahlia Society. This year two shows have been held, one at the Crystal Palace on September 2 and 3; the other at the Botanic Gardens, Regent's Park, on September 21 and 22. The wet, cold summer was altogether unfavourable to Dahlias, and the early show suffered considerably owing to the late season.

At the second show at the Botanic Gardens, practically all the classes were well contested, and the attendance was most satisfactory. The total number of entries for the two shows was 887.

Altogether some 150 new varieties were submitted to the Society, and ten certificates were awarded: four at the first show, two at the second, and four by a joint committee of the Royal Horticultural Society and National Dahlia Society. Twenty certificates were awarded to new varieties last year; fifteen in 1907.

The Committee paid a visit to Slough and inspected the trials of Pompons in Mr. Charles Turner's nursery. Several varieties obtained three marks as garden Dahlias and others gained three marks as exhibition varieties. These are named below. The committee wishes to acknowledge its indebtedness to Mr. Turner for his valuable assistance in conducting this trial.

Arrangements are being made to hold two exhibitions during 1910: one at the Crystal Palace on September 8 and 9, and the other at the Royal Botanic Gardens on (if possible) September 20 and 21.

It has been further arranged to hold a conference on Dahlias in March, at the Essex Hall, Essex Street, Strand. This, it is hoped, will have the effect of stimulating interest in the Dahlia world.

For the first time this year the N.D.S. offered prizes for Pæony-flowered Dahlias, also for garden Cactus varieties, and further decided to award certificates to any new Cactus varieties considered to be suitable for garden decoration.

Three new sections are enumerated in the Supplement for 1910, namely, Pæony-flowered, decorative, and collarette, with a list of the most useful varieties under each particular heading.

Three marks were awarded as the result of the Pompon trials at Slough to the following exhibition varieties:—Edith Bryant, Daisy, Clarence, Mars, Douglas, Cyril, Portia, Montague Wootton, Ideal, Orpheus, Nellie Broomhead, Nerissa, Tommy, Keith, and Adela. The following garden varieties also received awards: Darkest of All, Daisy, Mars, Falcon, Iris, Portia, Montague Wootton, Ideal, Isabel, Romulus, Silvia, Nerissa, Tommy, Keith, White Aster, Whisper, Vara, Zerlina, Virginala, and Adela."

The President stated that this was the first year of the amalgamation of the two societies, and, although it had been a very trying and difficult season, yet the results were satisfactory. The combined Society was now getting into a straightforward working condition. He emphasised the necessity of raisers of new varieties using their best endeavours to procure Dahlias that would be suitable both for garden decoration and exhibition, as this was of great importance to the future of the Society. Messrs. Gordon, Cheal, Mortimer and Stephens made some remarks, and afterwards the report and balance-sheet were adopted by the meeting. The balance-sheet showed that the receipts from all sources had amounted to £194 17s. 11d., and the expenditure was only 18s. 3d. short of that sum. The principal sources of income were: Subscriptions £89 11s. 6d., grant from the Crystal Palace Co. £25, gate money £22 15s., and advertisements in schedule £17 10s. 6d. Of the £194 17s. 11d. shown on the expenditure side, as much as £129 8s. 6d. was expended in prizes.

On the motion of Mr. John Green, Mr. Edward Mawley, V.M.H., was elected president for the ensuing year. Messrs. W. Stephens and C. E. Wilkins were added to the list of vice-presidents, in place of Mr. J. T. Bennett-Poë and Mr. John Green.

The General Committee were re-elected, Messrs. J. Harrison Dick, C. Lucking, and T. Jones taking the places of Mr. Stephens, who was elected

a vice-president, and Messrs. A. Dean and W. T. Frost.

On the motion of Mr. S. Mortimer, Mr. E. F. Hawes was elected secretary for the ensuing year, Mr. H. H. Thomas, who acted as joint secretary for the past year, having resigned. Mr. John Green was elected to the post of treasurer, and Mr. W. Stephens auditor.

At a meeting of the General Committee, held immediately following, the Executive Committee were re-elected, with the substitution of Mr. C. E. Wilkins for Mr. John Green, who was now an ex-officio member as treasurer. Mr. G. Gordon was elected chairman of the Executive Committee.

DEBATING SOCIETIES.

STIRLING AND DISTRICT HORTICULTURAL.

A well-attended meeting was held on December 14, when Mr. M. Chapman, Torbrey Nurseries, Stirling, lectured on "The History and Introduction of Fruit-bearing Trees and Plants into Britain." Eleven nominations were made for membership. The officers for 1910 were nominated for election at the annual general meeting to be held in January.

CARDIFF GARDENERS'.—A meeting was held at the Sandringham Hotel, on the 21st ult., under the presidency of Mr. Mark Toy. Mr. Horne, gardener to Major-General Lee, The Mount, Dinas Powis, read a paper on "The Cultivation of Winter-flowering Begonias." The paper dealt fully with the propagation and general treatment of these popular plants. Mr. Horne advocated the propagation of this Begonia by means of leaves, as this system gave the best results. Mr. J. Julian will address the members on January 4, on "The Lifting and Transplanting of Trees and Shrubs."

WARGRAVE AND DISTRICT GARDENERS'.—The last meeting for 1909 took place on Wednesday, December 15, when Mr. Wm. George, gardener to Mrs. Tuckett, Yeldhall Manor, read a paper on "Useful Flowering Shrubs." Among the subjects mentioned by the lecturer were *Pyrus japonica*, *Forsythia*, *Ribes*, *Berberis*, *Magnolia*, *Prunus* sp., *Lilac*, *Broom*, *Rhododendron sinense*, *Philadelphus*, *Gaultheria*, *Rose*, *Viburnum tinus*, *Spiraea*, *Weigela*, *Deutzia*, *Kerria*, and *Veronica*. The habits of growth, cultivation and propagation of each of these shrubs were brought under notice and a good discussion followed. The officers for the ensuing year were nominated in accordance with the rules of the association.

READING GARDENERS' ASSOCIATION.—The final meeting of the season was held on Monday, December 20, when one of the largest gatherings of members at these meetings assembled in the Abbey Hall, under the chairmanship of Mr. A. F. Bailey. The nomination of officers for the coming year was the first business, and afterwards Mr. E. Hickey, Maiden Erlegh Gardens, gave a lecture on "How to Plant a Bush Fruit Garden, 44 Yards Square." The lecturer gave full instructions as to the preparation and planting of the ground and the culture generally of Gooseberries, Red, Black and White Currants, Raspberries and Loganberries. He also gave a comprehensive list of the best varieties of each fruit, stating fully the qualities and characteristics of the different trees, and concluded by giving advice on the prevention and eradication of many of the pests of these bush fruits. The annual general meeting of the association is fixed for Monday, January 10, 1910.

CATALOGUES RECEIVED.

SEEDS.

DICKSON & ROBINSON, Cathedral Street, Manchester.
ED. WEBB & SONS, Wordsley, Stourbridge.
WM. FELL & SON, Market Square, Hitchin, Herts. (Sweet Peas).

TOOGOOD & SONS, Southampton.
LITTLE & BALLANTYNE, Carlisle.
T. METHVEN & SONS, Edinburgh.
ARTHUR S. RITCHIE & CO., Belfast.
W. LAING, Sutton, Surrey.

THE AGRICULTURAL AND HORTICULTURAL ASSOCIATION, LTD. ("One and All"), 92, Long Acre, London, W.C.
DOBBIE & CO., Rothesay.

MISCELLANEOUS.

W. & F. POAT, Richmond, St. Sampson's, Guernsey—Tomato plants grown in steam sterilised soil.
ISAAC GODBER, near Bedford—Market Chrysanthemums.
BOULTON & PAUL, LTD., Norwich—"French" Garden Requisites.

FOREIGN.

THE NIPPON ENGEI KAISHA, LTD. (The Japan Horticultural Co.), Settsu, Japan—Wholesale.
SLUIS & GROOT, Enkhuizen (Holland)—Seeds.
CARL BECK & CO., Quedlinburg—Seeds.

GARDENING APPOINTMENTS.

MR. A. GIBSON, for the past 5 years Gardener to Mrs. MICKLETHWAIT, Zeals House, Wiltshire, as Gardener to the same lady at Sandford Mount, Charlbury, Oxfordshire. (Thanks for 2s. sent for R.G.O.F. Box.—Eds.)

MR. A. DUBRIDGE, formerly Gardener to Sir BAMFYLDE FULLER, The Hermitage, Wyke, Winchester, as Gardener to Sir HENRY MILES, Bart., Leigh Court, Abbots Leigh, Bristol.

MR. HUGH ROBERTSON, for the past 5 years resident superintendent of Baxter Park, as superintendent, secretary, and treasurer to the Western Cemetery Company, Dundee.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending December 25, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was very unsettled, especially in the earlier half of the week, when heavy falls of rain occurred in most of the southern districts, and severe snowstorms further north. The latter appear to have been heaviest over the north and midland counties of England. Thunder and lightning were experienced in Wales and the north-west of England on Sunday night.

The temperature was below the average, the deficit amounting to rather more than 6° in Scotland E. and W. and Ireland S., and to more than 7° in Scotland N. In England E. the divergence from the normal was only 0.8°. The highest of the maxima occurred pretty generally on the 23rd, but at some western and northern stations on the 25th; they ranged from 56° in the English Channel and 54° or 53° in most of the English districts to 49° in Scotland N. and to 48 in Scotland E. The absolute minima, which were recorded mainly on the 20th or 21st, were extremely low. In the Midland Counties and Ireland S. (at Bawtry and Kilkenny) the thermometer fell to 8°, in England S.W. (at Llangammarch Wells) to 9°, and in many other parts of the Kingdom to between 10° and 15°. The lowest grass values were 5° (on the snow) at Worksop, 4° at Balmoral, 5° at Buxton, 6° at West Linton, 7° at Armagh, 9° at Hereford, and 10° at Crathee, Hull, and Dublin.

The mean temperature of the sea. At every station except Aberdeen the water was colder than during the corresponding period of last year, the difference being more than 7° at Kirkwall, and about 5° in several other places. The means for the week ranged from 47° at Newquay, and 46.4° at Seafield to rather less than 40° at some places on the north-east coast of Britain, and to 37.8° at Kirkwall.

The rainfall exceeded the normal in all districts excepting Scotland E., but the excess was very slight in Scotland N. and W., as well as in the English Channel. Over England and Ireland generally the amount was very large, the heaviest individual falls occurring on Tuesday, when amounts ranging between 1.0 and 1.5 inch were collected at many western and southern stations, and as much as 2.0 inches at Torquay, 1.8 inch at Falmouth, and 1.7 inch at Plymouth.

The bright sunshine was more than the average, the excess being very trifling in the English Channel, but large over the country as a whole. The percentage of the possible duration ranged from 39 in England E., 37 in England N. and S., and 35 in Scotland E., to 24 in the English Channel, and to 18 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending December 22.

A cold and wet week.—Until to-day, when the temperature in the thermometer screen rose to 51°, there had not been a single unseasonably warm day for 11 days. The last few nights have been very cold, and on the night of the 20th, the exposed thermometer registered 17° of frost—the lowest reading indicated by that thermometer since the middle of March. The ground is now 2° colder at 2 feet deep, and 4° colder at 1 foot deep than is seasonable. Rain or snow fell on 5 days during the week, and to the total depth of an inch. During the week 2½ gallons of rain-water came through the bare soil percolation gauge, and 3½ gallons through that on which short grass is growing. During the early morning hours of the 22nd there was a silver thaw, owing to rain falling on the ground while still frozen, which made the roads for a time very slippery. The sun shone on an average for 1 hour 18 minutes a day, or for 8 minutes a day longer than is usual at this period in December. During the 8 days ending the 17th no sunshine at all was recorded. The wind has been rather variable in strength, but at no time did the mean velocity for any hour exceed 12 miles. The average amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 6 per cent. The last Rose bloom of the year growing on a plant in the open ground in my garden was destroyed by frost on the 21st inst., which is exactly a week later than the average date of its destruction in the previous twenty-three years. E. M., Berkhamsted, December 22, 1909.

Week ending December 29.

A very warm week.—The last eight days have all been warm for the time of year, and on five of them the highest temperature in the thermometer screen exceeded 50°. The night readings, on the other hand, proved very variable, the exposed thermometer on three nights never falling below 40°, while on two others the same thermometer registered respectively 11° and 14° of frost. The ground temperatures have risen rapidly during the week, and are at the present time 1° warmer at 2 feet deep, and 4° warmer at 1 foot deep, than is seasonable. Rain fell on all but one day of the week, but only to the total depth of less than half an inch. During the week 4½ gallons of rain-water came through the bare soil percolation gauge, and 3½ gallons through that on which short grass is growing. The sun shone on an average for 1 hour 47 minutes a day, or for half an hour a day in excess of the usual duration at the end of December. The winds were, as a rule, high, and in the windiest hour the mean velocity reached 18 miles—direction west. There was about a seasonable amount of moisture in the air at 3 p.m. E. M., Berkhamsted, December 29, 1909.

MARKETS.

COVENT GARDEN, December 29.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia longifolia	0 9-1 0	Lily of the Valley,	12 0-15 0
— mimosa, p. dz.	12 0 15 0	extra quality ...	12 0-15 0
bunches		Marguerites, p. dz.	
Azalea, Ghent, per	1 0-1 6	bunches white	3 0-4 0
bunch ...	4 0-6 0	and yellow ...	2 0-3 0
— Fielder, p. dz.	4 0-6 0	Mignonette, per	
Bouvardia ...		dozen bunches	2 0-3 0
Carnations, p. doz.		Narcissus Paper	
blossoms, best	3 0-4 0	White, per dz.	
American (var.)	1 6-2 0	bunches	3 0 4 0
— second size ...	1 6-2 0	— Soleil d'Or ...	4 0 5 0
— smaller, per	12 0-18 0	Odontoglossum	
doz. bunches	6 0-8 0	crispum, per	
— "Malmaisons,"	1 6-2 6	dozen blooms	2 0-2 6
p. doz. blossoms	1 6-2 6	Pelargonium	
Camellias, per doz.	12 0-14 0	show, per doz.	
Cattleyas, per doz.	1 0-1 6	bunches	4 0-6 0
blossoms		— Zonal, double	
Daffodils, per beh.	4 0-6 0	scarlet ...	6 0-8 0
Eucharis grandiflora	3 0 4 0	Richardia africana	
— per dozen	10 0-15 0	(Calla), p. doz.	6 0-8 0
Gardenias, per doz.	4 0-6 0	Roses, 12 blossoms	
Heather (white),	2 0 3 0	Niphetos ...	1 6-2 6
per bunch	2 0 3 0	— Bridesmaid ...	2 0-3 0
Hyacinths, Roman,	2 0 3 0	— C. Testout ...	3 0 4 0
per doz. bchs.	10 0-15 0	— Kaiserin A.	
Lapageria alba, per	2 0 3 0	Victoria ...	2 0 4 0
dozen blossoms	2 0 3 0	— C. Mernet ...	3 0 4 0
Lilac (trough) p.	4 0-5 0	— Liberty ...	4 0-8 0
bunch ...	2 0-3 0	— Mme Chateaux ...	3 0 6 0
Lilium auratum	4 0 6 0	— Mrs. J. Lang ...	2 0 4 0
per bunch ...	1 6-2 6	— Richmond ...	3 0-1 0
— longiflorum	2 0-2 6	— The Bride ...	4 0-5 0
— lancifolium	2 0-2 6	Spiraea, p. dz. bchs.	2 0-4 0
rubrum	2 0-2 6	Statice, p. dz. bchs.	3 0-4 0
— album ...	8 0-10 0	Tuberose, per dz.	
Lily of the Valley,		blossoms	0 3-0 4
p. dz. bunches		Violets, per dozen	
		bunches	2 0 3 0
		Patma ...	4 0 5 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen	6 0-9 0	Grasses (hardy),	
bunches		dozen bunches	1 0-3 0
Asparagus plumosus, long	8 0-12 0	Hardy foliage	
trails, per doz.	12 0-18 0	(various, per	
— medium, doz.	0 9-1 6	dozen bunches	3 0-9 0
bunches		Ivy leaves, bronze	2 0-2 6
— Sprenger ...	12 0-18 0	— long trails per	
Berberis, per dozen	0 9-1 6	bundle ...	0 9-1 6
bunches		— short green,	
Croton leaves, per	2 6-3 0	per dz. bunches	1 6-2 6
bunch ...		Moss, per gross	4 0-5 0
Cycas leaves, each	9 0-12 0	Myrtle, dz. bchs.	
Ferns, per dozen	1 0-2 0	(English),	
bunches (Eng-)		small-leaved ...	4 0-6 0
lish) ...	2 0-3 0	— French ...	1 0-1 6
— (French) ...	0 6-0 9	Oak foliage, per dz.	
Galax leaves, per		bunches	12 0-15 0
doz. bunches	2 0-2 6	Smilax, per dozen	
		trails ...	6 0 8 0
		Vine leaves, per	
		doz. bunches...	1 0-1 6

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Ampelopsis Veitchii, per dozen	6 0-8 0	Cyclamen, per doz.	8 0 12 0
Aralia Sieboldii, p.	4 0-6 0	Cyperus alternifolius, dozen	4 0-5 0
dozen ...	9 0-12 0	— laxus, per doz.	4 0-5 0
— larger specimens	4 0-6 0	Dracenas, per doz.	9 0-24 0
— Moseri ...	12 0-18 0	Erica gracilis nivalis, per doz.	10 0-15 0
— larger ...	12 0-18 0	— hyemalis ...	9 0-15 0
Araucaria excelsa, per dozen	12 0-30 0	— small plants ...	3 0-5 0
— large plants, each	3 6-5 0	Euonymus, per dz.	
Aspidistras, p. dz., green ...	15 0-24 0	in pots ...	3 0-8 0
— variegated ...	30 0-42 0	— from the ground	3 0-6 0
Asparagus plumosus, per dozen	9 0-15 0	Ferns, in thumbs,	
— Sprenger ...	9 0-12 0	per 100 ...	8 0-12 0
— tenuissimus	9 0-12 0	— in small and	
Azaleas, per doz.	30 0-42 0	large 60's ...	12 0-20 0
Begonia Gloire de		— in 45's, per	
de Lorraine, p.	12 0-18 0	dozen ...	4 0-6 0
dozen ...	5 0-8 0	— clover sorts ...	8 0-12 0
Bouvardias, per		— in 32's, per	
dozen ...	8 0-12 0	dozen ...	10 0-18 0
Chrysanthemums,		Ficus elastica, per	
per doz.	8 0-12 0	dozen ...	8 0-10 0
— special plants,	18 0 30 0	— repens, per dz.	6 0-8 0
Cinerarias, per doz.	6 0-12 0	Grevilleas, per dz.	4 0-6 0
Clematis, per doz.	8 0 9 0	Isolepis, per dozen	4 0 6 0
Cocos Weddelliana, per dozen	18 0-30 0	Kentia Belmoreana, per dozen	15 0-24 0
Crotons, per dozen	18 0-30 0	— Fosteriana, per	
		dozen ...	18 0-30 0
		Latania borbonica,	
		per dozen ...	15 0-21 0
		Lilium longiflorum, per dz.	18 0-30 0

Plants in Pots, &c.: Average		Wholesale Prices (Cont'd.)	
	s.d. s.d.		s.d. s.d.
Lilium lancifolium, per. doz.	18 0 30 0	Poinsettias, p. doz.	9 0-18 0
Lily of the Valley, per dozen ...	18 0-30 0	Selaginella, p. doz.	4 0-6 0
Marguerites, white, per dozen ...	6 0-9 0	Solanums, per doz.	6 0-10 0
		Spiraea japonica, per dozen ...	6 0-9 0
		Veronicas, per doz.	3 0-6 0

Fruit: Average Wholesale Prices.			
	s.d.	s.d.	s.d. s.d.
Apples Newtown (U.S.), per barrel	...	18 0-25 0	Grapes, Canon Hall, per lb. ... 1 6-2 6
— (Nova Scotian), per barrel	...	14 0-16 0	— Almeria, per barrel ... 14 0-20 0
— Ribston Pippin	...	15 0-17 0	Lemons, box: — Palermo, 300 ... 9 0-11 0
— Blenheim Pippin	...	16 0-18 0	— 360 ... 9 0-11 6
— King of the Pippins	...	16 0-18 0	— (Naples), case 14 0 18 0
— (English), per bushel	...	3 6-4 0	Limes, per case ... 3 0 —
— Peasgood's Nonesuch	...	4 6-6 0	Lychées, per box ... 1 6-1 9
— Annie Elizabeth, p. bushel	...	5 0-6 0	Nuts, Almonds, p. bag ... 36 0-40 0
— Allington Pippin	...	3 6-4 0	— Brazils, new, per cwt. ... 30 0-23 0
— Bramley's Seedling	...	4 0-5 0	— Barcelona, bag 32 0-33 0
— Dumelews Seedling (Wellington)	...	3 6-5 0	— Cob, per lb. ... 0 3 4 0 4
— Lane's Prince Albert	...	4 0-5 0	— Cocoa nuts, 100 10 0-14 0
— Queen	...	3 6-4 6	— Chestnuts(French), per bag ... 5 0-5 6
— Warner's King	...	4 0-4 6	— Chestnuts (Rondori), per bag ... 6 0-7 0
— BlenheimOrange	...	3 0-4 6	— (Italian), per bag ... 16 6-18 0
— Lord Derby	...	3 6-4 6	Oranges—
— Cox's Orange Pippin, ½ sieve	...	5 0-8 0	— Denia, per case (420) ... 10 0-14 0
— Newtown Pippin, per case	...	11 0-13 0	— Valencia, per case (420) ... 7 0 10 6
— Oregon	...	9 0-11 6	— (Almeria), case 9 0-12 0
— Californian	...	12 0 18 0	— Jamaica, per case (176) ... 9 6-10 6
— British Columbia	...	5 0-10 0	— (200) ... 9 0-9 6
Avocado Pears	...	5 0-10 0	— Mandarin, Florida, p. case 15 0-16 6
Bananas, bunch:	...		— Mandarin, per box ... 0 7-1 0
— Doubles	...	5 6-6 0	— Tangerine, per box ... 1 3-1 6
— No. 1	...	5 6-6 0	Pomegranates, per case ... 6 6 7 6
— Extra	...	7 0-8 0	— per box ... 2 3-2 6
— Giant	...	9 0-11 0	Pears (Californian):
— Red coloured	...	4 6-6 0	— Doyenné du Comice, p. box 10 0-13 0
— Red Doubles	...	8 0-9 0	— Oregon Winter Nelis, per case 15 0-16 0
— Jamaica	...	5 0-5 6	— (French), Doyenné du Comice, per crate ... 9 0-10 6
— Loose, per dz.	...	0 6-1 0	— Catilacs (Dutch), per basket ... 2 0-2 3
Custard Apples	...	4 0-6 0	— Persimmons, p. box (12) ... 1 0 —
Grape Fruit, case	...	9 0-12 0	Pineapples, each ... 2 0-5 0
Grapes, per lb.:	...		— (Natal), per dz. 4 0-6 0
— Gros Colman	...	0 9-1 3	
— English Hambros	...	0 5-1 0	
— Alicantes	...	0 3-1 0	
— Muscat of Alexandria	...	0 10-2 6	

Vegetables : Average Wholesale Prices.			
	s.d.	s.d.	s.d.s.d.
Artichokes(Globe), per dozen	1 9-2 0	Mushrooms,per lb.	0 7-0 8
Asparagus, Paris Green, bundle	4 0-4 6	— broilers	0 5-0 6
— Sprue, bundle	0 8-0 10	Mustard and Cress, per dozen pun.	1 0 —
Beans (French), boxes	1 0-1 3	Onions (Lisbons), per box	6 6-7 6
— Madeira, per basket	3 0-5 0	— (Dutch), p. bag	3 6-4 6
Beetroot,per bushel	1 6-2 3	— picking, per bushel	3 0-4 0
Cabbages, p. tally	4 0-5 6	— Valencia,p.case	6 6-7 6
Cardoons (French), per dozen	8 0-10 0	Parsley, ½ sieve	2 0 —
Carrots (English), dozen bunches	2 9-3 0	Potatoes (English), per bag	2 6-4 6
— per bag	2 9-3 0	Radishes (French), per doz. bunches	1 3-1 6
— unwashed	1 6-2 0	Seakale, per dozen punnets	16 0-18 0
Cauliflowers, tally	5 0-7 0	Spinach, ½ sieve	2 6-3 0
Celeriac, per doz.	1 6-2 6	Stachys tuberosa, per lb.	0 3 1 —
Chicory, per lb.	0 3-0 3 ½	Tomatos (English), per 12 lbs.	3 0 —
Cucumbers, p. doz.	6 6-9 0	— (English), s.s.	2 6 —
Endive, per dozen	1 3-1 9	— second quality	1 0 —
Horseradish, fore- ign, new, per bundle	1 0-1 2	— Teneriffe, per package	10 0-14 0
Leeks, 12 bundles	1 6 —	Turnips, bag	2 0-2 3
Lettuces (French), per dozen	0 9-1 0	Watercress, p. flat	4 0-6 6

REMARKS.—No consignments of American Apples have been received during the past week and the remainder of the previous shipments are being sold at reduced prices. Oranges are cheaper, with the exception of the finest fruits. English Grapes generally, though a little firmer in price, are still plentiful. Pineapples have been fairly cheap this Christmas. Some good English Tomatoes have been received. Canary Tomatoes are arriving in better condition. Red Bananas arrived to-day from the West Indies and sold readily at good prices. Cucumbers are dearer. The Christmas trade generally was only moderate. This week the market is quiet. E. H. R., Covent Garden, Wednesday, December 29, 1909.

1909.		Potatos.			
		per cwt.			
		s.d.	s.d.	Lincolns—	per cwt.
				s.d.	s.d.
Bedfords—				Sharpe's Express...	3 0-3 3
British Queen	... 3 0-3 6			Up-to-Date	3 3-4 0
Up-to-Date	... 3 0-3 6			British Queen	3 3-3 9
Blacklands...	... 2 6-2 9			Royal Kidney	2 9-3 0
Dunbars—				Kents—	
Maincrop	... 5 9-6 0			Sharpe's Express ...	3 0-3 6
Up-to-Date	... 4 6-5 0			May Queen ...	3 0-3 6
Lincolns—				Up-to-Date	3 3-4 0
Epicure	... 2 9-3 0				

REMARKS.—Trade is slow, being influenced by the mild weather and the holidays. Stocks in London are still large. Prices are about the same as those of last week. Edward J. Newbern, Covent Garden and St. Pancras, December 29, 1909.

COVENT GARDEN FLOWER MARKET.

The Christmas trade did not prove very favourable. Business on Thursday was bad owing chiefly to the weather, and buyers were cautious on Friday, as their shops would be closed on the three following days.

CUT FLOWERS.

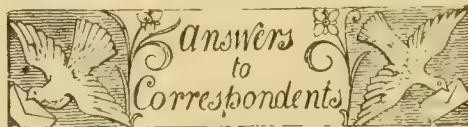
Chrysanthemums have been abundant this Christmas. Mme. Felix Perrin and the varieties that have originated from it are splendid kinds for Christmas flowering; and Framfield Pink, Heston White, and Winter Cheer are good. Some of the newer sorts which have been described as late, have proved to be mid-season varieties. Carnations are remarkably good. The new crimson "Parola" has been making 5s. per dozen blooms. The average price for best flowers of other sorts being from 3s. to 8s. 6d. per dozen blooms. Beacon is a favourite amongst scarlet varieties. There is no white kind to surpass White Perfection for this season of the year. Lilium, generally, are not of the best quality, many blooms have apparently been unduly forced, and consequently they are thin and weak; their prices are low. Callas have been much cheaper during the past few weeks. Roses are fairly plentiful, but much higher prices are asked for blooms of best quality. Some moderately good red Roses are arriving from France but they are not satisfactory, as they soon lose their colour and the petals drop. Ranunculus, Violets, Anemones, Marguerites, and White Lilac are all good. Lily of the Valley, Tuberoses, Narcissi Paper White, and Soleil d'Or are seen in quantities. English grown samples of Trumpet Major Daffodils have a high value.

POT PLANTS.

Since Christmas there has been little demand for pot plants, and even last week the trade in them was very quiet. On the Friday before Christmas most growers sent their surplus stocks back to the nurseries. Chrysanthemums are not quite so plentiful. Ericas are good and well flowered. The tall pyramidal plants of E. melanthera are very attractive. Supplies of E. gracilis hold out well. Tulips are cheaper. Solanums have not been much in demand. A little later we may expect a better trade in pot plants, but for the present there will be many empty stands. A. H., Covent Garden, December 29, 1909.

Obituary.

WILLIAM LONG.—The death of this gardener occurred on December 15 at Brislington, Bristol, at the age of 75 years. Mr. Long was a prominent exhibitor at flower shows, and won many prizes for stove and greenhouse plants at the Bath and other flower shows. He was especially skilful in the culture of Rhododendron indicum, and he often won the 1st prize for 12 pyramidal-shaped specimens at the Bath Horticultural Show. Deceased leaves one son, who has been for 17 years head gardener to Sir R. T. Hermon-Hodge, Bart., M.P., Wyfold Court, near Reading.



AGRICULTURAL INSTRUCTION: M. M. Insert an advertisement.

CASCARA BARK: J. W. H. This drug is obtained from a Californian species of Rhamnus.

CELERY: North Devon. We expect the cause of your Celery being malformed in the way described is the method by which the earthing-up is carried out. Care should be exercised to place the soil firmly around the base of the plant, keeping the stalks quite close together. Some varieties are very much more prone to be affected in this way than others, especially those which have a tendency to spread out their foliage whilst growing.

COMPENSATION: G. B. Although there seems to be no reported legal decision dealing with the precise point, we consider that, under the circumstances stated in your letter, your neighbour is liable to pay you damages. He would not be able to plead that it was an "inevitable accident" or "an act of God." He chose to keep on his premises a thing which he knew endangered your property, and, therefore, he should be treated as having done so at his own risk.

COVENT GARDEN FLOWER MARKET: Constant Reader. From the present time until April the Market will be open for business on Tuesdays, Thursdays and Saturdays from 5 a.m. to 9 a.m. for the sale of plants and cut flowers. On Mondays, Wednesdays and Fridays it will open at 7 a.m. and close at 9 a.m. for the sale of cut flowers only. During April it is open for the sale of plants and flowers every morning from 5 to 9 a.m. In May and June

the opening hour is 4 o'clock a.m. on Tuesdays, Thursdays and Saturdays, and other mornings at 5 o'clock. In August the short hours are resumed, and no plants are sold on by days, excepting a few days before Christmas. There are many stores outside the flower market where cut flowers may be purchased up to quite late in the day, but very few have plants, although Messrs. Rochford & Sons is an exception. In the foreign, or what is generally known as the French flower market, the time of closing varies. If consignments are known to be on the road, it is kept open long enough to do what business is possible after their arrival, which may be from 9 to 10 a.m.

GREASE BANDS: J. W. H. These can be obtained from the horticultural sundriesmen. Consult our advertising columns. The glass can be cleansed by means of a mop and warm soapy water.

NAMES OF FRUITS: G. N. S. 1, Glou Morceau; 2, Beurre Rance; 3, Easter Beurre; 4, Stone's Apple (syn.) Loddington Seeding.

NAMES OF PLANTS: Interested. 1, Adiantum tenerum; 2, A. cuneatum; 3, A. gracillimum; 4, A. Patotii; 5, A. Capillus-Veneris. Stove plants: 1, Plumbago rosea; 2, Cordylina (Dracena) concinna; 3, C. Lindenii; 4, C. Sanderiana; 5, C. indivisa; 6, Zebrina (Tradescantia) repens.—*Cyp.* Cypripedium Leeanum, with white dorsal sepal spotted with purple, and Cypripedium Murillo (Boxallii x Argus).—*F. R. H.* 1, Oncidium Forbesii; 2, Oncidium pratextum; 3, Ada aurantiaca; 4, Odontoglossum blandum; 5, Odontoglossum Coradinei; 6, Aerides odoratum.—*Foreman.* 1, Cupressus sempervirens; 2, Cupressus Lawsoniana lutea; 3, Osmanthus ilicifolius; 4, Berberis Darwinii; 5, Pieris (Andromeda) japonica; 6, Forsythia suspensa.

PRIMULA OBCONICA: R. P. No disease is present. The trouble is due to excess of moisture about the plants.

RESPECTFUL READER: J. S. 1. The answer to this question depends on so many varying considerations—as the age and nature of the trees and the soil, &c.—that it is impossible to give you a reply in general terms without very full details of the circumstances of the case. 2 and 3. By the common law, "whatever is planted in the soil goes with the soil," and, therefore, the general rule is that things planted immediately become the property of the ground landlord. Nurserymen have, however, the right to remove trees and shrubs planted, this being necessary to their trade. Market gardeners also have special privileges, including the right, on giving up possession, to claim compensation from the landlord for fruit trees, &c., permanently set out. In your own case, however, we gather that you are merely taking a house with a well-stocked private garden, and, if this is so, the outgoing tenant must leave the trees behind, and has no right to sell the trees to you, unless his landlord has given him permission to take them away. This subject was fully discussed in the *Gardeners' Chronicle* of December 29, 1906.

SEA-BEAN: W. G. & Co. The seed is that of the yellow-flowered Cow-itch (*Mucuna urens*), a twining plant of Leguminosae, native of the West Indies and tropical South America. The pods are marked by transverse ribs, and are partially covered with stinging hairs. The seeds commonly known in the West Indies as "horse-eye beans" are often carried by ocean currents, and thrown ashore in temperate countries, where they are known as "sea-beans." They are easily polished, and are used for ornamental purposes, such as bracelets.

TO DESTROY ANTS: H. E. See reply to R. A. in the last issue, p. 440.

WILL: Anxious One. The will is valid if signed by two or more witnesses, but these should not include a legatee or the wife or husband of a legatee.

Communications Received.—W. Thorpe—L. E. S.—W. E.—J. McD.—W. W.—R. C. (next week)—E. H. R.—J. E. T.—T. Humphreys—J. O. B.—Mark W.—Dr. K.—W. E. B. (too late for this issue)—A. Wells—W. J. J.—G. S.—H. W. P.—J. C.—P. R. E.—F. W. P.—California—A. & B., Ltd.—B. G.—J. D.—Hugh M.—K. D.—E. H. R.—A. D. Hall—J. Belot, Liège—C. H. V.—John S.—John D.—John W.—H. S.—J. W.—Dr. D., Berlin—F. J. C.—J. D. G.—W. S. B.—S. B. L.—E. M.—John F., Ltd.—J. G. W.—W. C. G. L.—W. P. R.



THE Gardeners' Chronicle

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THE PALM GARDEN AT FRANKFORT.

(See figs. 17 and 18 and Supplementary Illustration.)

THE Palm garden at Frankfort-on-the-Maine is one of the famous gardens of the world. Unlike most gardens of its kind, it is managed on strictly commercial lines by a business company, which fact accounts for the various forms of amusement which are not usually associated with a botanic garden. But the visitor to the indoor plant department would never imagine the management was of this kind, for the collections of Cactaceous plants, Palms, Orchids, and other species are excellent in variety and superior to those found in many botanical gardens. It is these features which, to our mind, make the Frankfort garden remarkable. It might have been expected that an indoor garden, founded and maintained expressly for the entertainment of the public, would consist of great batches of the commoner and more showy plants. That this is not the case at Frankfort may be taken as a proof of the intelli-

gence of the inhabitants, for in its present form the garden is an unqualified success. Therefore, this German garden is not without its lessons for people in this country.

Its history has many points of interest. In 1866, after the war with Austria, Duke Adolf of Nassau moved his seat of residence from Biebrich to Frankfort, leaving behind him his famous collection of Palms and other plants at Biebrich. At this stage several shrewd business men, knowing the tastes of the inhabitants, thought it would be a fine thing for Frankfort if the collection could be procured to form a winter garden. Accordingly negotiations were started with the Duke, who valued his property at £13,000. A company was formed, and in a very short time a sum of about £17,000 was collected. In the meantime the Duke, "on account of the hospitality shown to him at Frankfort," to quote the words of a guide-book, had lowered the price from £13,000 to £6,500, so that after buying the

garden than are displayed therein. The Palm house already mentioned was built in 1871. Its dimensions are: Length 170 feet, breadth 100 feet, and height 50 feet; although an excellently designed house for providing proper cultural conditions, its height is insufficient to accommodate some of the larger specimens.

Some of the Palms are planted out, and where pots are needed they are plunged and cleverly hidden by the carpet of Selaginella, which covers the main portion of the beds.

The central lawn, as it were, of Selaginella, has a curious appearance to Englishmen who have not travelled on the Continent. It almost seems a waste of space, in an expensively constructed and heated building like the Palm house, to devote a considerable area to the growth of Selaginella apoda minor; but in the Dahlem Botanic Garden, and in some other public gardens in Germany, there is a similar arrangement, and it has a natural effect that is not found in hothouses in this country



FIG. 17.—INTERIOR OF THE PALM HOUSE AT FRANKFORT.

plants the company had a sufficient sum left to buy land and erect houses. A commission was sent to Brussels, Ghent and Kew to get ideas for forming the garden, and subsequently designs and plans were made by Siesmayer, a landscape gardener, of Frankfort. The first plant house to be built was the Palm house, which was attached to the restaurant, and was destined to receive the major portion of the Duke's collection. This structure, with five other smaller span-roofed houses, was built in 1871, and served to accommodate the whole of the indoor plants. In 1904 seven small houses 30 yards long were built for nursery purposes, and in 1906 a commodious range of 13 modern houses was erected.

THE HOUSES.

By far the most interesting feature of Frankfort is the indoor department, and we have never seen healthier or better-grown plants either in a trade, botanical, or private

The Palms are grouped together as in borders, the lawn of Selaginella commencing among the outermost plants of the group, and, extending into the open, has exactly the same effect as outdoor groups of tropical trees and shrubs cultivated on a lawn. In this house the paths are of red gravel, and they wind about in such a manner that the visitor walks beneath a canopy of lofty Palms, &c.

The collection of Palms is a fine one, as the name of the garden might imply, but besides these there are many other tropical plants. A few of the finest specimens include Howea Forsteriana (30 feet), Livistona australis (45 feet), Pandanus furcatus, Caryota Rumphiana, Arenga saccharifera (48 feet), Sabal umbraculifera, Phoenix sylvestris, and Cocos flexuosa. A novel feature consists of a Fern-clad grotto and waterfall, which serve to enhance the general effect and to keep the atmosphere moist. We were informed that many plants in this house were injured by a fire which

occurred in 1879, so that a large part of the original Biebrich collection was destroyed.

The other houses are quite modern, and consist of a corridor with a domed central hall 200 feet long, out of which 13 span-roof houses lead to the right and left. They were built in 1905, and contain all the latest improvements in the way of heating and ventilating arrangements. Houses I. and II. contain a collection of stove plants, consisting chiefly of *Codiaeums* (Crotons), *Cordylines* (Dracænas), Aroids, and Palms. In summer these are removed either into other houses or to the outside department, and their place is taken by greenhouse plants. House III. contains decorative flowering plants such as Lilies, *Hippeastrums*, &c., in the summer, and forced Roses in the winter-time.

The *Victoria regia* house shown in the Supplementary Illustration is No. IV. Its dimensions are:—Length 80 feet, and breadth 50 feet. It contains an oval tank 45 feet long and 30 feet wide, with four small corner tanks for swamp plants. Besides the *Victoria regia* a number of tropical *Nymphæas* are grown, the general effect being very good.

In House V. is a well-grown collection of *Anthuriums*, Aroids, *Cordylines* and Ferns. The *Anthurium Veitchii* is a splendid specimen; in fact, we do not remember ever to have seen a finer. The *Platyceriums* were also in excellent condition at the time of our visit in April last.

(To be continued.)

THE ROSARY.

CULTURAL HINTS FOR JANUARY.

THE wet weather has delayed planting operations. Frosts also have appeared, and this will have the effect of causing the postponement of further planting until February or even later. Unplanted cuttings of *Manetti* and other stocks claim the first attention. They should be planted two-thirds of their depth and the ground about them made very firm. Cuttings of Roses inserted during October have become loosened in the ground by the frost, therefore tread the soil well up to them again, and place a good mulch of fermented manure along the rows. Standard and dwarf Briars planted during the autumn should also be given a similar dressing of manure.

Material used for protecting the plants during severe weather should be of a light nature and used as dry as possible, so that the air can pass freely through it. It is necessary to have the material at hand, as it will not do to take any risks in this matter, especially with tender sorts, because the shoots are very unripe and sappy, owing to the unfavourable weather last season.

Now that we have entered upon the New Year, and the days will soon be lengthening, the atmospheric temperature of the forcing house may be increased to 55°. With this additional warmth a little fresh air can be admitted on the south side of the house during the middle of the day; and an occasional syringing on bright mornings will prove beneficial. Close the ventilators early in the afternoon. Be careful not to exceed the temperature recommended, or undue forcing will result in drawn and weakly shoots. Sturdy growth is favoured by sunlight, therefore the plants should be placed close to the glass. When the weather is dull, lightly damp the floor and stages instead of syringing the plants, as it is necessary to maintain a humid atmosphere, but not a saturated one. Keep down aphids by means of fumigations, and if one dose of medium

strength is insufficient to destroy all the green fly present, follow it up with another fumigation early the next morning. This is a safer and more effective method than using a very strong preparation at long intervals, as excessive doses are liable to produce injury. When the flower-buds appear, afford the plants a little artificial manure. Each 6-inch pot may be given a small teaspoonful, about twice weekly, of a mixture containing the following stimulants: 2½ ounces of superphosphate, ¼ ounce sulphate of ammonia, ½ ounce of nitrate of soda, and ¾ ounce of sulphate of potash. This dressing can be alternated occasionally with weak liquid manure, say, about every fourth watering.

Towards the end of January the remainder of the stock of established Roses may be brought into heat from the cold house. After the plants are lightly pruned place them on a layer of fine ashes at the cooler end of the house, keeping them, for the present, rather dry at the roots. When the buds begin to swell, ply the syringe amongst the pots and the shoots early on bright mornings. Roses of the Tea and Noisette sections will succeed in a higher temperature than those of the Hybrid Perpetual class, and should, therefore, be staged in the warmer part of the house. These must also be pruned more sparingly than the stronger-growing Hybrid Perpetuals; all that is required is the removal of the soft and weakly shoots. The above remarks

LIST OF ROSES FOR SPRING PLANTING.

The following varieties, whether planted as standard or dwarf specimens, may be relied upon to give satisfactory results. They are mostly of vigorous growth and flower freely. The colours represent a good selection:—Hybrid Teas: *Caroline Testout*, *Kaiserine Augusta Victoria*, *Mme. Abel Chatenay*, *Lady Battersea*, *Papa Gontier*, and *Mrs. W. J. Grant*; Tea: *Mme. Hoste*, *Lady Roberts*, *The Bride*, *Homère*, *Maman Cochet*, *Perle des Jardins*; Hybrid Perpetuals: *Hugh Dickson*, *Dupuy Jamain*, *Frau Karl Druschki*, *Mrs. Sharman Crawford*, *General Jacqueminot*, and *Merveille de Lyon*.

Roses planted out under glass are starting to grow freely. With sunshine the temperature may be allowed to rise to about 65°. At such times the ventilation should be increased during the day, and on warm nights the ventilators may remain open slightly. As the season advances a moister atmosphere should be maintained about the plants. J. D. G.

TREES AND SHRUBS.

BERBERIS DICTYOPHYLLA.

THIS Barberry is still a comparatively rare plant in gardens, although discovered by the Abbé Delavay as long ago as 1886. He records it as growing at an elevation of 3,000 feet on the



FIG. 18. INTERIOR VIEW OF THE PALM HOUSE AT FRANKFORT-ON-THE-MAINE.

apply to established plants potted up late in spring. As the plants develop it will be necessary to guard them against the maggot that infests the bud and foliage.

Plants potted during October may, about the 20th of this month, be placed under glass, selecting a cold house or frame. The shoots should be pruned somewhat severely, in order to induce the bottom buds to break freely without excessive forcing.

GRAFTING ROSES.

The grafting of Roses with dormant scions under glass will soon be brought to a finish. When the plants are ready for transferring from the propagating frames into the house, the frames may be utilised for soft or herbaceous grafting. A supply of scions may be obtained from the forcing house, where the shoots will soon be sufficiently ripe for the purpose. The tops of the shoots from the earliest winter-grafted Roses are also suitable. In the case of new and rare varieties this latter system offers great facilities for increasing the stock, as each single bud with a leaf can be used for budding, and the terminal growths, although soft and unripe, for grafting. Roses of the Tea, China, and Noisette types do best grafted on the Briar and de la Grifferae stocks, whilst the H.P.s, Bourbon, and allied Roses should be worked on the *Manetti* or Briar stocks.

Fanyangshan Mountain, in the province of Yunnan, China. The plant first reached this country from France, and is figured in the *Botanical Magazine*, tab. 7833, issued in 1902. It is nearly allied to the Himalayan species, *B. angulosa*.

The specimen which suggested the writing of this note is an erect bush, 5 feet in height, and deciduous. At the present time, December 1, the rich autumn tints of the leaves make it the most conspicuous of all the Barberries; orange-red will, perhaps, best describe the colour. The vigorous young stems are glaucous white, thus adding materially to the beauty of the plant. The drooping, bright red berries contain mature seeds, providing a ready means of propagation. The fruits usually ripen in October, although a number are still hanging on the bush.

The leaves vary from ½ inch to 1 inch in length, the largest being about half an inch wide. They are produced in tufts, or small rosettes, at intervals of about half an inch along the stem. Obovate in shape, they are pale green above and glaucous-white beneath. The pale yellow flowers are about half an inch in diameter, produced from the tuft of leaves in May, usually solitary, but occasionally two from the same tuft of leaves.

Barberries thrive in ordinary garden soil, growing especially well in a rich, medium loam. A. O.

NEW OR NOTEWORTHY PLANTS.

CALLISTA v. DENDROBIUM.

I AM pleased to be able to give Dr. Kränzlin some additional information respecting the *Callista amabilis* Lour (see *Gardeners' Chronicle*, December 25, 1909, p. 431), the specimen of which is in the Botanical Department of the Natural History section of the British Museum at South Kensington.

The specimen is of a *Dendrobium*, and either *D. thyrsoiflorum* or some near ally, and consequently not open to consideration in reference to the plant which flowered with Dr. Goldschmidt, and which Dr. Kränzlin identifies with *Callista amabilis*. Dr. Goldschmidt's plant, of which I have seen a photograph showing flowers and plant, is, so far as I can judge without seeing the flowers themselves, *Dendrobium aduncum*, Hook., f. (*hercoglossum*, Rchb.), *Bot. Mag.*, t. 6784 (not of Lindl., *Bot. Reg.*, t. 15), and which bears not even the remotest resemblance to the specimen of *Callista amabilis* Lour, which, as I stated in my brief note (*Gardeners' Chronicle*, p. 393), might well be called *Dendrobium amabile*. To return to the specimen of *Callista amabilis* in the Natural History Department, South Kensington, it always seemed familiar to me, the clavate three or four-leaved pseudo-bulb with its coriaceous leaves at once suggested that form of *Dendrobium thyrsoiflorum* (*Gardeners' Chronicle*, March 26, 1892) imported by Messrs. Sander from the extreme border of the Shan States, and well on the way to Cochin China, given as the habitat of *Callista amabilis*. The basal part of the inflorescence, with its characteristic bracts, is still attached to the pseudo-bulb, the apical half being gummed beside it. The flowers are all detached, and more or less decayed, but Dr. Rendle, the director of the botanical department, with his usual kindness, caused one of them to be immersed in warm water, and an examination of the expanded, though imperfect, flower seemed to leave no doubt about its being very close to *Dendrobium thyrsoiflorum*, if not actually the plant we have in gardens under that name, and which some authorities place as a variety of *D. densiflorum* James O'Brien.

CYPRIPEDIUM MRS. F. SANDER.

THE illustration in fig. 19 represents a flower of a *Cypripedium* raised by Messrs. Sander & Sons, St. Albans, between their *C. Eve* and *C. insigne Sanderæ*. *C. Mrs. F. Sander* was awarded a First-class Certificate at the Royal Horticultural Society's meeting on December 21, 1909. The parentage of *C. Eve*, which was also raised by Messrs. Sander, is not positively known, but it is supposed to have resulted from *C. aureum Surprise* crossed with *C. insigne Sanderæ*. Therefore, the albino element is strong in the seedling, which is certainly one of the finest hybrids of its class. The dorsal sepals are pure white, with a small emerald-green base; the petals and lip pale greenish-primrose-yellow, slightly tinged and marked on the petals with pale purple.

A MARKET FRUIT-GROWER'S YEAR.

THE almost continuous rainy weather of December was a fitting climax to the meteorological conditions of a dismal and unseasonable year. My measurement of rain for the month up to the morning of the 28th is 6.89 inches, making the year's total just under 35 inches, a quantity which will probably have been exceeded before the New Year comes in. This total has not been approached in any but one of the eight preceding years of the present century, the exception being the exceedingly wet year 1903, when I measured 37.16 inches. That year was the wettest on record at Greenwich. Moreover, it is to be observed that the rainfall of the latter

wished to try the experiment of "puddling" trees in, there have been ample opportunities. Having a few rows of trees to plant, in order to finish a field, I had them put in after a frost, when the land was in a comparatively solid condition for digging the holes. But when the earth dug out had thawed completely under the influence of bright sunshine, it was mud, and as this was trodden over the roots, there was as complete a puddling as could be desired by a disciple of the Woburn school. These rows have been labelled, in order to see how the trees flourish. Since this operation was carried out, we have been waiting in vain for an opportunity of proceeding with the planting of Black Currants among the trees. Some planting of Plums



FIG. 19.—CYPRIPEDIUM MRS. F. SANDER.

(Awarded R.H.S. First-class Certificate on December 21, 1909.)

half of 1909 was over 24½ inches, or nearly an inch greater than that of the corresponding period of 1903. This quantity for six months is nearly a year's average, and it exceeds the totals for the years 1904, 1902, and 1901. Anything like the state of slush experienced during nearly the whole of December I have never known before. The land was completely full of water, which stood on the surface of flat fields for days at a time, while many low-lying fields were flooded.

Under such circumstances as those described above, it is hardly necessary to state that the planting of fruit trees and bushes has made but little progress since November. If anyone

and Black Currants on other land also awaits a favourable opportunity.

The loss of time caused by the rainy weather is a serious matter. It is no exaggeration to state that fully a month's work that would have been completed under favourable circumstances is in arrears.

A POINT AS TO PLANTING.

As the plan of harrowing a field and marking it out for planting with a ridging plough without its breasts has been recommended in a previous article, an admission of its disadvantage in such a season of flooding rains as the present

must be freely made. If the field under consideration had been left as it was ploughed, and planted by means of a measuring line, the land would not have been nearly as wet on the surface as it was after the harrowing. The weeds that came up after the ploughing would have been left unchecked, and the regularity in the rows and distances of the trees and bushes would have been less nearly perfect than they are; but if I had known what a mess the field would get into, the plough furrows would have been left undisturbed. As it is, the best of a bad job has been made by opening furrows between each two rows of trees or bushes with the ridging plough with its breasts on, while water furrows have been also made in the proper positions for carrying away surface water. This plan is regularly pursued after a fruit plantation has been cultivated by horse power for the last time in the autumn, and when it is done while the land is in dry condition, it keeps the soil free from stagnant water.

THE WEATHER AND FUNGUS DISEASES.

It is to be feared that the wet season will lead up to an extraordinary development of fungus diseases, such as scab and brown rot. The year was damp throughout after February, rain being frequent even in months when the total rainfall was small, so that the diseases mentioned had full encouragement. Many young shoots of Cox's Orange Pippin are covered with scab, and will have to be cut back severely in consequence, the cuttings being carefully collected and burned. At present hardly any scab has been noticed on the young wood of other varieties; but all will be sprayed in the latter part of February with 4 lbs. of copper sulphate alone to 100 gallons of water.

BULLFINCHES AND BUDS.

There are too many bullfinches about this season, and the troublesome little pests have started on the disbudding of Red Currants and Gooseberries. A few of the birds have been shot and others trapped, and no opportunity of killing these birds will be lost. At present, they have not started on Plum buds, but Greengage trees, which are particularly attractive to them, are inspected nearly every day, in order that spraying with lime and sulphur wash may be carried out as soon as an attack begins. Gooseberry bushes in one field must be sprayed at once. This lime and sulphur wash, the most messy of all spraying mixtures to prepare, and the most difficult to get into good condition for going through the sprayer, is now prepared by Messrs. Walter Voss & Co. This fact is mentioned in order to save fruit-growers from a very unpleasant preparation. With proper apparatus for boiling and straining, the mixture can be made much better than it can be at home, and it was on my suggestion that Messrs. Voss & Co. began to prepare it. For spoiling suits of clothes, the home-preparation of this wash is unequalled. It should be applied on a dry day, and so long as it sticks on the bushes it keeps birds off. After a few heavy downpours of rain, however, the spraying may need to be done a second time. In some winters—the last one, for example—birds do not attack Gooseberry or Plum buds to any extent worth notice. Therefore, it is not necessary to spray until an attack has been begun. Then not a day's delay should be allowed, and this indicates the advantage of having the wash ready-made and in stock.

SOME NOTES ON PRUNING.

Like all other work in the open, pruning has been hindered a great deal by the rainy weather, and there is more than usual to be done, because the past season encouraged wood growth even on old Apple trees which do not usually make much extension. The effects of the tremendous aphid attack of 1909 also necessitates more cut-

ting back of young trees than would otherwise be desirable. It is pitiful to notice the condition of some fine young trees planted, in one case, three years ago, and in another, four. Growths that would have been vigorous, clean, and well-directed for furnishing the trees are in some cases twisted and covered with unhealthy buds, and need to be cut back unsparingly. An experiment in stripping off the leaves smothered with aphides last summer on some shoots and crushing the pests in the process, seems to have done some good. Fresh leaves soon covered the shoots, which are in sounder condition than those which were left unstripped. It is disappointing to find that Bramley's Seedling, supposed to be less liable to damage from the aphid than most other varieties, has suffered badly. Beauty of Bath is another victim, but that is not surprising, as it is always a favourite of the pest. Domino is another variety much injured.

The amount of judgment required in pruning different varieties of Apple trees is always brought into prominence when the work is in progress. Some varieties, including Gascoyne's Scarlet, Royal Jubilee, Bramley's Seedling, Warner's King, Charles Ross, Early Julyan, and Cox's Orange Pippin, shape themselves with very little guidance when not disturbed by the aphid. In the cases of the two first-named varieties, very little beyond thinning, and not much of that, has been necessary for trees planted three years ago. A few of the main branches require shortening, but chiefly to make fresh extensions point in the right direction; otherwise, the branches are stout enough to be left alone. Lane's Prince Albert, Allington Pippin, Beauty of Bath, Domino, Irish Peach, Worcester Pearmain, and Duchess of Oldenburg, on the contrary, require a great deal of pruning, though for different reasons. Lane's Prince Albert is a producer of feeble and spiky growths, too often pointing downwards, and these, for the most part, need to be cut to buds pointing upwards, while a good deal of clean thinning, as well as some spurring, is necessary. Allington Pippin has furnished itself with plenty of long growths, mostly, however, somewhat slender, and sloping away from the prevailing wind, so that some of them bend right across the centre of a tree. Nearly every shoot has to be shortened and directed for fresh growth. There are also numerous laterals sticking out straight or pointing downwards. Many of these in the interior require cutting off closely. There is no need to spur Allington Pippin to any great extent, as it is certain to have an abundant crop in most seasons from naturally-formed fruit spurs. Beauty of Bath grows unequally, some branches being twice as thick and vigorous as others, and, as a rule, they are too thinly disposed on young trees. Domino smothers itself with natural fruit spurs and weak, internal growths. Like Allington Pippin, it is in peculiar need of summer pruning or disbudding. Irish Peach has made a lot of lanky growths, which must be cut back severely. It is, perhaps, the most difficult of all Apples to prune, because it fruits mainly on its terminals. Therefore pruning cuts away much possibility of fruit, while lack of pruning leads to the formation of long and pendulous branches. The proper plan of dealing with it appears to be to prune it somewhat severely when young, in order to get it well furnished with sturdy branches, and then to do little to it beyond thinning. Worcester Pearmain will grow to a thicket internally if its shoots are not thinned severely. Duchess of Oldenburg is very troublesome in making growths pointing inwards, and thus it needs cutting back to buds pointing outwards, and thinning, for some years after the planting. One of its few merits is that it is with me almost exempt from aphid attack. *A Southern Grower, December 28, 1909.*

THE WHEAT CROP OF 1909.

THE experiments on Wheat are among the oldest of those conducted at Rothamsted. Broadbalk field has been under arable culture for at least two or three centuries. It grew its last Turnip crop in 1839; this was followed by Barley, Peas, Wheat and Oats. The last four crops were grown without manure.

The continuous growth of Wheat commenced in 1843, and has since proceeded without interruption, so that the crop of 1909 was the sixty-sixth crop of Wheat in succession upon this field. The cultivation of the land has been that usual in the district; there has been no deep ploughing. During the course of the experiments the variety of Wheat sown has been changed three or four times; latterly Square Head's Master has been sown, a fresh stock of seed being procured each year. The area of the plots, of which there are 20, is in nearly all cases one-half acre. The Wheat is drilled in October, weather permitting, 2 bushels of seed being used. In the spring and early summer great care is taken to remove weeds, the most troublesome of which is the grass *Alopecurus agrestis* (Slender Foxtail).

The meteorological records at the Rothamsted Agricultural Station show that in the harvest year, September 1, 1908, to August 31, 1909, there was in this district 325 tons of water per acre less than the average quantity of the past 55 years; March, June, July and August being the only months which recorded an excess of rainfall. In fact, it was more the result of the continuous rainy days, the small amount of bright sunshine, and the low mean temperature than the excessive rainfall in June, July and August, which injured the grain crops and added so considerably to the cost of harvesting.

The following table shows the produce of Wheat, and the weight per bushel of dressed grain on some selected plots of the permanent Wheat field at Rothamsted, Herts, in 1909, compared with the average on the same plots:—

DRESSED GRAIN PER ACRE, AND WEIGHT PER BUSHEL.

Description of Manures per acre.	Dressed Grain.		Weight per bushel.	
	1909.	Average Quantity.	1909.	Average Weight.
Plot.	Bushel.	Bushel.	lbs.	lbs.
3. Without manure for 70 years ...	9½	13½	60·8	58·6
2. Farmyard dung 14 tons ...	33½	35½	61·0	60·6
5. Superphosphate and potash ...	10½	15	60·5	59·6
6. Superphosphate, potash, and 200 lbs. sulphate ammonia ...	17½	24	59·2	60·3
7. Superphosphate, potash, and 400 lbs. sulphate ammonia ...	29	33	58·8	60·1
8. Superphosphate, potash, and 600 lbs. sulphate ammonia ...	32½	37½	59·5	59·8
9. Superphosphate, potash, and 275 lbs. nitrate soda ...	24½	27½	59·9	59·1
16. Superphosphate, potash, and 550 lbs. nitrate soda ...	26½	32½	59·4	61·2

The foregoing data shows that the produce of Wheat in 1909 is in every case below the average yield, ranging from 2 bushels deficient on the plot receiving farmyard manure to nearly 7 bushels deficiency on Plot 6, with the small quantity of ammonia salts. The weight per bushel is variable, in some cases being slightly above average, while in others it is somewhat below average weight. Owing to the insufficiency of warmth during the ripening period, none of the Wheats in the experimental field are properly developed, and they will yield, therefore, a large proportion of bran when milled into flour. The quantity of straw produced by the plots ranges from 50½ cwt. per acre on Plot 2, with the farmyard dung, to 9½ cwt. per acre on Plot 3, without manure. The proportion of offal

PLANT NOTES.

IPOMOEA (EXOGENIUM) PURGA.

In a garden near East Grinstead I saw a plant of this species flowering profusely at the end of October, although the year was remarkable for little sunshine. The plant has reached a height of 12 to 15 feet, and it was flowering in profusion. It was trained with Roses and other climbers on a home-made trellis of Chestnut wood. I had previously seen the plant in flower when not more than six fully-expanded blossoms could have been counted at any one time, but on this occasion it was wreathed with its Convolvulus-like blossoms of a deep claret or purplish-red colour. The plant, like other members of the Bindweed family, has a twining habit of growth. In Nicholson's *Dictionary of Gardening* the plant is described as "Stove evergreen climber," but it is less tender than is generally believed. The only protection the plant in question is afforded consists of a winter covering of ashes about the base.

Seeing that the winter of 1908-9 was of some

grain to dressed is generally large, being in some cases about 30 per cent. of the whole. The proportion of grain to straw ranges from 30.4 to 58.7 per cent.

It is noteworthy that, under such extreme conditions of soil exhaustion as prevail on Plot 3, which has received no manure of any kind for the past 70 years, the quality of the grain does not suffer; last year it weighed over 63 lb. per bushel, and when converted into flour made as good loaves of bread as the grain from any other plot.

The value of a supply of potash in the manurial mixture was very apparent in the Wheat results this year. One plot to which sulphate of potash was applied gave an increase of $9\frac{1}{4}$ bushels of Wheat per acre, and 10 cwt. of straw, while another plot gave $12\frac{3}{4}$ bushels of grain and 13 cwt. of straw over plots which received phosphoric acid and nitrogen but no potash.

Nitrogenous manures being by far the most costly a farmer has to purchase, it is important to remember that economy in their use depends a great deal on there being a sufficient supply of available phosphates and potash in the soil. J. J. Willis, Harpenden.



FIG. 20.—DAPHNE CNEORUM IN THE R.H.S. GARDENS AT WISLEY.

DAPHNE CNEORUM.

THIS dwarf, trailing shrub is a native of certain mountain ranges in Europe, and is especially abundant in Austria. It produces terminal umbels of bright pink, fragrant flowers during April and May, and, in some seasons, again in September. The plant shown in fig. 20 is growing in the gardens of the Royal Horticultural Society at Wisley, where it is planted in an open, sandy soil, in a fairly dry situation. The plant is an evergreen, procumbent shrub, and seldom exceeds 9 inches in height. Propagation is easily effected by means of layers; but these require a considerable time before they are ready for planting.

An annual top-dressing of loam, peat, and sand about the roots has the effect of inducing fresh roots to form from the base of the woody stems.

The specific name *Cneorum* has been applied to *D. caucasica*, and also to *D. striata*. The former has axillary clusters of white flowers, and the latter differs from *D. cneorum* in being erect and entirely glabrous. *Daphne cneorum* is figured in the *Botanical Magazine*, t. 313. Y.

severity and last year one of the coldest for some seasons past, there should be no difficulty in succeeding with it in other parts of the country. The plant furnishes the Jalap of commerce: it is a native of the woods about Xalapa, in Mexico, where the tuberous, purgative roots are collected and dried for medicinal purposes. E. H. Jenkins.

HEMANTHUS KATHERINÆ.

THIS plant is the finest of the section *Nerissa*, to which it belongs, being of surpassing beauty. It was first described in the *Gardeners' Chronicle* for May 26, 1877, p. 656, by Mr. J. G. Baker, who compares it with *H. multiflorus*, another brightly-coloured species belonging to the same group, but coming from West Tropical Africa. *H. multiflorus* was figured in 1608, that is 302 years ago. *H. Katherinæ* was discovered by Mrs. Katherine Saunders, after whom it was named at least eight years subsequent to the discovery. I was delighted, on a recent occasion, to see three potfuls of bulbs of this fine plant in the conservatory of T. Simpson, Esq., Fennymere, Castlebar Hill, Ealing. The bulbs were sent home by his son from Durban, South Africa, whence the first dried speci-

mens and living bulbs came. One pot had two umbels of bright orange-scarlet flowers and the other two had five and six large umbels respectively. The flower-scape is lateral from a scale of the bulb, while the large and well-developed leaves, in perfection contemporaneously with the flowers, are carried by a special stem as in several other species of the genus. The segments of the flowers are broader than those of *H. multiflorus*, spreading or slightly reflexing, so that the flowers are much more conspicuous than in those species where the segments are erect and densely crowded. The umbels vary from 6 inches to 7 inches in diameter when fully expanded, so that six of these in a 9-inch or 10-inch pot have a splendid effect in a house. It is the most easily cultivated species of the section. J. F. [H. Katherinæ formed the subject of the Supplementary Illustration in the issue for February 1, 1908.—EDS.]

FLORISTS' FLOWERS.

LATE CHRYSANTHEMUMS.

To have good Chrysanthemums at Christmas time and early in the New Year, much care is required in their culture. The varieties enumerated below are suitable for the purpose.

White-blooming varieties should include Heston White (a sport from Winter Cheer), which is the best and most reliable white Chrysanthemum I have grown: it can be had in good condition from Christmas till February. It grows to a height of about 4 feet, is robust, and is seldom attacked by mildew. Mrs. J. Thompson is a well-known variety, growing a little taller than Heston White. When kept out-of-doors late, the plant does not keep its foliage well, and the buds are liable to decay. Snowflake is another good white Chrysanthemum, with a green tinge in the opening flowers. When grown in 6-inch pots, it is suitable for placing in vases or similar receptacles. The plant grows about 3 feet high.

Of pink kinds, Winter Cheer (a sport from Framfield Pink) is most reliable. Its height is about 4 feet. A. J. Balfour is a good variety, which I find does better in 6-inch than in larger pots. It is much lighter in colour than Winter Cheer, which is a very deep pink. The height is $3\frac{1}{2}$ feet.

A selection of the best yellow varieties includes Yellow Mrs. Thompson (a sport from Mrs. J. Thompson), a pale, glistening yellow, one of the best of its colour; and Allman's Yellow, of deep tone, whose rather small flowers are borne on long, wiry stems, and last well into the New Year; height about 5 feet. Nagoya is a large, deep-yellow flower: it is best disbudded, being then exceptionally fine about Christmas. The plant is a robust grower, attaining to a height of about 4 feet. King of Plumes: this is one of the best of the thread-petalled varieties for late flowering; the colour is a pale yellow. The blooms, when fully expanded, keep in good condition longer than those of any other variety. Treasure is a good deep-yellow, small-flowered, single variety for this season.

The best of the bronze shades is Tuxedo: it is a beautiful flower, with a tinge of red, which shows especially brilliant under artificial light. The long, wiry stems and robust constitution are additional qualities; the height is 5 feet.

As to crimsons: W. J. Crossley lasts well into the New Year. The plant is robust, producing very dark-crimson blooms; height 5 feet. Dorothy Seward is an old variety, but I always find it useful for blooming at this late season. Red Canning is much dwarfer than the two last-named varieties. It succeeds best in 6-inch pots; height about 3 feet.

My practice in growing late Chrysanthemums is to take the cuttings any time from December till March, and to dip them in a quart of soft water, in which has been placed a teaspoonful of

soft soap and a piece of sulphide of potassium about the size of a Hazel Nut, before potting them. The plants are stopped when about 5 inches high, and again when the young growths are a few inches long; the last stopping is done about the middle of July. Twice during the growing season, and again just before they are housed, the plants are sprayed with 1 ounce of sulphide of potassium dissolved in 2½ gallons of rain-water. A very fine sprayer is used, the undersides of the leaves being well wetted, but as little moisture as possible is allowed to lodge in the tips of the plants. They are stood in the sunniest position possible, with a fair amount of room between each pot, to secure well-ripened growths and to check mildew. Some varieties succeed best in 6-inch pots, and even the strongest-growing varieties do not require larger than 9-inch pots. When out-of-doors the plants are protected during cold weather by spare lights fixed up on the north side of a fence. When the flower-buds are about the size of a small Pea, the plants are placed under the lights. They are well covered during frosty nights. Plants that are frozen, although they apparently recover, often fail to open their flowers, the buds going black inside. The plants are given a little fertiliser or soot-water twice a week. All dead leaves are picked off, and all side shoots removed. This latter operation is important, for if the side shoots are allowed to grow, the selected bud or buds often fail to develop, and the side shoots form a mass of growths that are too weak to furnish fine flowers. Failing lights, I have made a tarpaulin serve the purpose of protection. The plants are brought into the plant-house about the middle of November. They are fumigated when first housed, and again three days later, to destroy thrip. Abundant ventilation is given whenever the state of the weather will allow. The night temperature should range from 45° to 50°, which is sufficient to keep them growing steadily. *J. Rawlings, Ridgmont Gardens, Enfield.* [Blooms of the varieties enumerated by Mr. Rawlings accompanied his notes.—Eds.]

There is hardly any better test of the merits of a late variety than that it should be largely grown by market men. I have just seen quantities of superb flowers for the time of the year of the varieties Mdle. T. Panckouke, Princess Victoria, Mr. J. Thompson, Snowdrift, and Heston White, the last-named variety in trusses; these are all white varieties. The finest yellows were François Pilon and Nagoya, and the best pinks Winter Cheer and A. J. Balfour. As Mr. Molyneux mentions four of these in his selection (see p. 11) it is obvious they are first-class. Nagoya is a really lovely rich yellow, incurved variety, and F. Pilon a brilliant yellow, reflexed flower. Country growers needing specially late varieties can hardly do better than follow the selections of growers for the London market. *A. D.*

One of the best varieties for late flowering is Charles Longley. It makes a splendid bush for house decoration, produces first-class flowers for cutting purposes, and the blooms never fail to open freely and well. Its colour may be described as rosy-purple. It is very effective either by day or under artificial light. I send a few flowers for your acceptance. *James Winchester, Windle Hall Gardens, St. Helens, Lancashire.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of Northampton, Castle Ashby, Northamptonshire.

Renovating wall trees.—Fruit trees growing against walls, and that have showed signs of exhaustion owing to heavy cropping or other causes, may be stimulated by a liberal top-dressing. First of all, remove, by means of a fork, 3 or 4 inches of soil from the surface. Then spread out the roots very carefully, and cover them with some good, fresh loam, containing a good sprinkling of ½-inch bones and bonemeal, also finely-broken old mortar rubble or plaster. Make this compost very firm with the feet or a large wooden rammer, and afterwards apply a thorough watering with diluted liquid manure. After the pruning and training operations have all been finished, the trees may then be given a liberal mulch of farmyard manure.

Apricot trees.—These growing against walls

being the earliest trees to flower, should receive first attention in the way of pruning and training; but before this is commenced, a piece of rough trellis-work should be placed on the border for the operator to stand upon. This is much better than a plank in wet weather. Assuming that pinching was carried out during the summer, there will not be any severe pruning necessary at present. The longer spurs may be shortened to within two or three buds at the base of the shoots, and all dead branches should be cut back to the sound wood, carefully smoothing over the cut with a sharp knife. If any dead branches have to be removed it will alter the balance of the tree, and the branches should be rearranged in order that they may be trained evenly. The young shoots should be left their entire length, as the Apricot resents severe pruning. Supposing the wall to be provided with wires, the operator should first tie in the main branches at an equal distance apart with tarred fillis (this is softer than tarred cord). The remaining branches and shoots should be fastened in position with good raffia, which should be well twisted in order to be additionally strong. Be careful to keep all shoots pointing in the correct direction, and cut the ties fairly short, in order that the trees may have a neat appearance. If the method of training is that of nailing, the operator should first remove all the old shreds. For the new shreds, leather cut in strips is the best material for fastening the larger branches, and is very durable. Cloth shreds should be used for the smaller shoots; these latter may be purchased from the local tailor, and can be cut up during wet weather. When the training is completed, remove all the rubbish from the border and syringe the trees thoroughly with an insecticide. Apply the liquid with force to wet every crevice in the wall. Spraying is best done in the morning of a fine day, in which case the trees will become dry again before night. The remarks already made regarding top-dressing will apply to the Apricot. This fruit tree requires a calcareous soil, and it may be necessary to add an extra quantity of lime and lime rubble to the compost.

General work.—Take advantage of frosty mornings for wheeling and carrying manure and soil into various quarters of the garden, where these materials will be needed for the renovation of old borders, or for planting purposes. If birds are troublesome to the buds of Currants and Gooseberries, syringe the bushes with some distasteful mixture, or dust them over first thing in the morning with fine soot and lime.

THE FLOWER GARDEN.

By E. BECKLEY, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Summer bedding plants.—It is not too early to commence preparations for the summer bedding, for the success of this form of gardening depends to a very great extent upon the size and good condition of the plants at the time they are put out into the beds. Well-grown plants of good size and properly hardened will produce a better effect than double the number of smaller and indifferent specimens. The style of summer bedding at present popular is very different to that which was practised 30 or 40 years ago. In most respects the change is for the good, as the present system furnishes more varied and, therefore, more interesting effects. Many plants which in those days were cultivated exclusively in the cool greenhouse are now found to succeed out-of-doors during summer, and it is to these plants that the modern flower garden owes much of its attractiveness. Most of the plants which were rooted from cuttings last summer should be potted during the next five weeks, putting them singly into 3-inch or 5-inch pots. If this is done, and they are kept in a warm atmosphere they will make excellent specimens by the time they are required for planting. Amongst the most suitable of the class of plants that I have referred to are the following: *Swainsonia galegifolia* alba, a delightful plant for bedding purposes if the specimens are a good size when planted out. A bed planted with this species at Aldenham House was illustrated in the last issue of this journal. The *Swainsonias* should be potted singly at once, and given another shift into 6-inch pots about the first week in April. *Streptosolen Jamesonii* is another charming plant for the flower garden and requires similar treatment to the *Swain-*

sonia. This plant is well adapted for forming low standards. *Lantanas*, especially *L. delicatissima*, are to be recommended. *Fuchsias* of sorts, *Plumbago capensis*, *Abutilon*, *Aloysia citriodora*, *Iresine Lindenii*, *Salvias* of sorts, *Calceolaria amplexicaulis* and *C. Burbidgei*, and many similar subjects are valuable.

Pelargonium.—Those plants which were rooted singly in small pots in autumn should be shifted into 5-inch pots. Paul Crampel, which is one of the best of the scarlet-flowered varieties, answers especially well to this treatment.

Propagation.—Many of the softer-wooded plants make better specimens if cuttings are rooted after the commencement of the New Year, and cultivated without a check. This work may now be commenced in a propagating house or pit; care must be taken to provide the pots or boxes with drainage, employing a light, sandy compost for the rooting medium and covering the surface with a layer of sand. The newer bedding varieties of *Verbena* have a free-flowering habit and the colours of the flowers are charming, but any varieties or plants showing the slightest trace of disease should be rejected. Other plants that may be treated in this manner are *Alternanthera*, *Coleus*, *Mesembryanthemum*, *Tropæolum*, *Alyssum*, *Ageratum*, *Lobelia*, *Fuchsia*, and others. Seeds may now be sown of both tuberous and fibrous-rooted *Begonias*, also of *Wigandia*, *Melanthus major*, *Grevillea robusta*, *Musa*, and *Canna*.

Old specimen plants.—If specimen bedding plants are preserved from year to year, they flower very profusely. The best structure to keep them in during the winter is a cool house or pit, in which sufficient heat can be employed to prevent frost. The plants should be kept moderately dry at the roots at the present, but they may be encouraged to commence growth again at about the middle of February.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Seakale.—The crowns intended for forcing should be lifted and stored in some sheltered corner until required. Seakale is easy enough to force, provided it is not subjected to excessive heat at the commencement. It may be forced either in pots or boxes in any dark chamber, if only an occasional dish is required, but if large supplies are necessary, it is better to force the crowns in heated pits that have shutters fitted to them for excluding light. The pits should contain a hot-bed of leaves for supplying bottom heat. The bed of soil should be 8 inches deep, rich, and rather moist at the time it is used, in order that water may not be necessary for some time. The temperature of the bed must never rise beyond 75°, or the Seakale will suffer considerable injury. We force at Frogmore at least 14,000 crowns each season in the manner I have described. Provided there is a bottom heat of 70°, the produce from each pit should be cleared in about three weeks from the time of planting the crowns. When the roots are lifted from the ground, care should be taken to save as many of the rootlets as will be necessary for planting next season. These rootlets should be about 8 inches in length, and be cut clean through with a knife, and afterwards be laid horizontally in a trench on a south border, where they should be covered 6 inches deep with light soil. By April they will have commenced to form crowns, and it will be necessary to plant them out in well-prepared soil in rows 2 feet wide, allowing 1 foot from plant to plant in the row. When the young shoots appear above the ground, they must be carefully thinned, leaving only one crown to each plant.

Asparagus.—Strong roots of *Asparagus* suitable for forcing can be grown in four years from seed, or the roots in the oldest bed may be taken up each year for the purpose of forcing; the latter system is practised at Frogmore. This method makes it necessary to form fresh beds every spring, but the system is found to answer perfectly well. In the forcing of *Asparagus* the heat should not exceed 70°, or the growth will be spindly and thin. If forced *Asparagus* is needed in large quantities, a pit must be set apart for the purpose, and preference given to one that can be warmed when necessary with fire-heat. A bed of leaves, or other fermenting material, should be formed in the pit to a depth of 4 feet; this will

afford sufficient bottom heat for three successive batches of crowns, provided a little fresh fermenting material can be mixed with the old and each time new roots are introduced. Before the roots are placed in their forcing quarters, a layer of rotted manure 2 inches deep should be placed over the beds, covering this with a small quantity of fine soil. The Asparagus roots should be placed as closely together as possible, covering them with 1 inch of sifted leaf-soil, and watering them liberally with the water warmed to 75°. After a few days, the young shoots will begin to show, when the covering should be increased to a depth of 4 inches, using finely-sifted leaf-mould. No further watering will be necessary. The crop should be ready to gather within three weeks of the commencement of forcing.

French Beans.—In last week's notes, January 25 should have read February 25, this latter being the date when pods should be ready for gathering from plants raised from seeds sown at the present time.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Melons and Cucumbers.—Sow seeds for the first crop of Melons. The cotyledons issue from the thick end of the seed, therefore this end should be placed uppermost in sowing, otherwise the plants are liable to be deformed at a very early stage. Place two seeds in a small pot, and plunge the pots in a hot-bed. As canker rarely attacks the stem below the cotyledons, young Melons are all the better if they are 3 inches or 4 inches high before the first rough-leaf forms; another advantage is that this length of stem allows ample room for applying top-dressings without having to bury the lowermost leaves. When the plants have reached this height, pinch out the weaker one and support the other by means of a small stake. Place the pots near to the glass in an atmospheric temperature of 70°. Seeds may also be sown of Cucumbers in the same manner as Melons, and successional sowings may be made every six weeks.

Tomatoes.—Sow Tomato seeds thinly in pots or pans filled with light, porous soil, and place them in a heat of 65° to 70°. When the plants have made the first rough leaf, prick them off into small pots. Do not allow them to suffer check at any stage, but grow them steadily on until they are ready to be placed in the final pots or beds. At that stage the fruits of the first flower-truss should be set.

Strawberries.—Place batches of Strawberry plants in heat at regular intervals according to the requirements of the establishment. Wash the pots, and top-dress the plants with a safe fertiliser, before placing them indoors. It is a good plan to water the soil with clear lime water in order to get rid of any earthworms that may be present in the pots.

Pot vines.—The early vines started in November are growing freely. If the canes were tied down in a horizontal or circular position, until the buds commenced to grow, they may now be trained in their permanent places on the trellis. As soon as the inflorescences are visible, pinch the shoots at the second leaf beyond the flower. Let the atmospheric temperature be about 55° to 60°, and admit air on favourable occasions, but close the house at noon, and at the same time syringe the house and vines with tepid water. Take care to prevent excessive heat during the night, and even during the day so far as it arises from hot-water pipes, as this would tend to weaken the growth.

Permanent vines.—The vines which are required to ripen their Grapes in June must now be started. The house may be closed, and a temperature of 45° maintained at night. Syringe the rods daily and damp the paths. Vines usually break more kindly if a small bed of leaves or manure is placed in the house. This fermenting material, which will give off a certain amount of both heat and moisture, should be turned over daily. If this method is adopted, less syringing will be necessary.

Vine eyes.—These may be inserted during January. Select well-developed buds or eyes and place them in small pots containing sandy soil. Plunge the pots in a frame where there is a gentle bottom heat, and remove superfluous moisture from the glass of the frame each day by

means of a sponge or cloth. When young shoots have been made $\frac{1}{2}$ inch long, remove the plants from the frame, and place them near to the glass in an atmospheric temperature of 60° to 65°. Plunge the pots in leaves or tan.

PLANTS UNDER GLASS.

By JOHN DOUGHERTY, Gardener to JOSEPH LEEKE-SOILL, Esq., Harden Hill, Westwood, York-shire.

The conservatory.—Now that the Christmas season has passed with its usual drain upon the resources of the decorative department, every effort must be made to maintain the conservatory as bright as possible. Fresh introductions should be tastefully arranged, disposing them thinly in order to allow free circulation of light and air. See to the immediate removal of decayed and dead flowers as often as may be necessary; admit air on all favourable occasions, and maintain just sufficient artificial heat to prevent excessive dampness. The plants should be examined carefully each day for water, but only those should be watered that actually require it. The creepers and climbers will need to have the weak growths removed, and those remaining thoroughly cleansed and afterwards trained over the available space. The most important point to remember in the treatment of such plants is that overcrowding is certain to result in comparative failure. The borders should have the old soil carefully removed down to the roots of the plants. The drainage should be examined, and afterwards a top-dressing should be applied, using a compost specially suitable for the particular plants.

The forcing houses.—Amongst the bulbous plants suitable for early forcing are Tulips, Narcissi, and Hyacinths, but any that are selected for this purpose should be thoroughly well rooted before they are introduced to heat. Hyacinths and Narcissi require to be forced more moderately than Tulips, but, after the flower-buds can be seen, the temperature may be increased until the development of colour commences, at which stage the plants should be removed to cooler conditions. The earliest batch of Freesias are now showing their flower-spikes, and may be given an occasional watering with clear soot-water and weakly-diluted water from the farmyard. Each growth must be neatly staked and looped up with green raffia. Azaleas are amongst those shrubs which respond most easily to early forcing. Then there are Lilac, *Prunus triloba*, *Staphylea colchica*, *Viburnum plicatum*, *Spiraea confusa*, and *Laburnum*. Batches of *Astilbe* (*Spiraea*) *astilboides* and *A. japonica* may be introduced into heat at intervals of a few days. Lily of the Valley can now be forced either from Berlin crowns or crowns grown in the home garden. The flowers from these newer crowns will be more fragrant than those which have been obtained from retarded crowns.

Hippeastrums.—An early batch of *Hippeastrums* may be placed in gentle warmth, selecting bulbs which ripened earliest. The bulbs should be allowed to remain in the same pots, but the surface soil should be removed, replacing it with a compost of fibrous loam and peat, with which a small quantity of coarse sand and a few small pieces of charcoal are mixed. After these plants have bloomed, they should be kept separate from the main stock, with a view to giving them more stimulants during their period of growth, and afterwards putting them aside for re-potting. It is not advisable to keep the same bulbs for forcing each year.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TRILVOR LAWRENCE, Bart., Burford, Surrey.

Dendrobium.—For flowering in late winter and early in spring, few Orchids are more valuable than *Dendrobiums*. At the present time many of these plants are showing their flower-buds, and some, as *D. Wardenianum*, *D. crassinode*, *D. micans*, *D. Aspasia*, *D. Euryclea*, *D. Euterpe* and *D. Clio*, are starting into growth, but the grower must not be tempted to afford them much water at the root, or the young shoots will grow too rapidly and prevent the development of flower-buds. These early growths will remain almost stationary for a long time if the plants are kept moderately dry and in a well-ventilated house. For the present

the *Cattleya* house will be warm enough, but when the buds are well advanced, the plants should be removed to the lightest side of the East Indian house. During the flowering season the plants will require water only at long intervals, but when new roots are seen pushing from the base of the growths, a gradual increase of water may be afforded. Other varieties, as *D. Curtisii*, *D. Dominianum*, *D. signatum*, *D. Wiganiae*, *D. burfordiense*, *D. nobile*, *D. Ainsworthii*, *D. splendissimum*, *D. Schneiderianum*, *D. cybele*, *D. Thwaitesiae*, *D. Chessingtonense*, *D. chryseum*, *D. melpomene*, and *D. melanodiscus*, which do not usually start into premature growth, may be brought from their cool resting quarters, when the flower-buds are showing prominently at the nodes, into a house having a rather dry atmosphere and intermediate temperature, such as the *Cattleya* house. Later, when the flower-buds are well advanced, the plants should be removed to warmer conditions. Afford only sufficient water to keep the pseudo-bulbs plump. Such species as *D. cretaceum*, *D. crepidatum*, *D. Parishii*, *D. Pierardii*, *D. Boxallii*, *D. transparens*, *D. lituiflorum*, *D. primulinum*, *D. superbum*, and others which are still at rest should be kept dry till the flower-buds show, when the plants should be placed in a warm, moist atmosphere. The tall-growing species, as *D. fimbriatum*, *D. dioxanthum*, *D. clavatum*, *D. moschatum*, *D. Paxtonii* and *D. calceolus* should be kept in a house where the night temperature is about 50° to 55°, and be kept moderately dry at the root, but immediately the flower-spikes appear the plants should be brought into the warmest house. *D. Dalhouseianum* is also a tall-growing species, and it needs the temperature of the warmest house at all seasons. The plants, while at rest, should be kept dry, but the pseudo-bulbs must not be allowed to shrivel for want of water, for, though conducive to free flowering and large spikes of bloom, shrivelled plants grow but weakly afterwards. The distinct *D. albo-sanguineum* is now finishing its season's growth; it thrives well when suspended in a light position in the *Cattleya* house, where it should remain at all seasons. Keep the potting materials well on the dry side, until the flower-spikes begin to push out from the pseudo-bulbs, when the roots may be kept moderately moist. *D. Falconeri* must now only be given water often enough to prevent undue shrivelling. Keep it close to the roof-glass of the *Cattleya* house, and syringe the plants all over once a week. *D. Falconeri giganteum* is probably a natural hybrid, with *D. Wardenianum* as one of its parents, and should be treated in every respect as advised for that species. The curious *D. tetragonum* is now flowering in the cool intermediate house, which appears to be the most suitable place for it.

THE APIARY.

By CHLGRIS.

Packing section honey.—Many beekeepers find some difficulty in packing the sections for safe transmission by post. It may be pointed out that only those sections which are well filled from side to side, and, likewise, equally well sealed, will travel without mishap. Generally speaking, not more than six sections should be put in one package. They should be placed in cheap folding card cases first, to keep them free from dust and other impure and injurious matter. The sections should then be arranged in two threes, side by side, placing two pieces of thin board or stout cardboard, exactly the length of two sections and the width of one, and securing them firmly together. Before wrapping the package in brown paper, place about the sections some crumpled buffers of newspapers. I have sent some hundreds of sections packed in this manner through the post, and have never had a mishap. In packing for transit by rail, it is well to place in a strong box a bed of crumpled newspapers, not less than 3 inches in thickness. In this the sections, having been treated in a similar manner to those intended for the post, should be arranged, but round the sides and ends there should be a 3-inch space filled tightly with crumpled newspapers. Pack tightly at the top, then screw or nail on the lid. Label the package plainly and securely. If the box is provided with rope handles so much the better. It is not wise to place more than three or four dozen sections in a single package.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JANUARY 10—
Roy. Hort. Soc. Exam. of Public Park employes, at 10 a.m. Surveyors' Inst. meet. United Hort. Ben. & Prov. Soc. Com. meet. Reading Gard. Assoc. Ann. Meet.

TUESDAY, JANUARY 11—
Roy. Hort. Soc. Coms. meet. Lecture at Hort. Club, by Mr. Alexander, on "The Gardens of Ceylon," at 6 p.m. Barr Memorial Com. meet. Brit. Gard. Assoc. Ex. Council meet.

THURSDAY, JANUARY 13—
London Branch of B.G.A. meet.

FRIDAY, JANUARY 14—
Ann. Meet. Kent County Chrys. Soc. at Lee Green, at 8 p.m.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—37.9°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 5 (6 P.M.): Max. 43°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 6 (10 A.M.): Bar. 30.5; Temp. 42°; Weather—Dull.

PROVINCES.—Wednesday, January 5: Max. 48° W. Ireland; Min. 30° Durham.

SALES FOR THE ENSUING WEEK.

MONDAY—
Dutch Bulbs, Perennials and Hardy Border Plants at 12; Roses and Fruit Trees at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
New and rare Perennials, Dutch Bulbs, &c., at 12; Roses and Fruit Trees at 1.30; Palms, Azaleas, &c., at 5, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Sale of Fruit Trees and general Nursery Stock, at the Royal Nurseries, Bush Hill Park, N., by order of Messrs. Stuart Low & Co., at 11, by Protheroe & Morris.

FRIDAY—
Hardy Border Plants and Perennials, Dutch Bulbs, &c., at 12; Imported and Established Orchids, at 12.45; Roses and Fruit Trees, at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Is it Frost or Drought? most gardeners are watching the weather with close attention, not unmingled with fore-

bodings. The past year has been sunless to an exceptional degree, and, though the late autumn was not quite so mild as in 1907 and 1908, yet plants are meeting the winter in a very soft, unripened condition. Should some really severe weather come in January, we may expect destruction as widespread as it has been during the last two winters, unless special care is taken to protect the susceptible occupants of the garden. It is, however, rash to prophesy, for every gardener will have many recollections of plants, generally regarded as tender, passing unhurt through intense and long-continued frost; whereas, on other occasions, a single day of quite a moderate degree of cold has destroyed plants usually regarded as hardy. An explanation may possibly be found in the fact that in a very large number of cases frost is only indirectly the destructive agent; the plants really perish of drought, their regular water supply being cut off, for at the low temperatures the power of roots to absorb water is reduced to an extraordinary degree. Of course, there are many plants which are actually killed by the plasmolysing action of cold, aided, perhaps, by the mechanical action of the sap expanding as it freezes and bursting the tissues. When the Dahlias and Tropaeolums perish with the first autumnal frost there is no doubt as to what has caused the damage, and many other

herbaceous plants are killed as soon as they are frozen. That killing by frost is not due simply to the bursting of the tissues by the expanding ice, is proved by the fact that there are many plants which may be frozen solid without taking any harm, as though their sap could be turned into ice without causing any rupture of the cells. However, putting aside the really tender plants, which must be prevented from freezing in order that they may survive the winter, we have in mind rather the case of Tea Roses and their like, plants which evidently can stand a great deal of cold, but which are so given to dying off unaccountably in certain winters that the wise gardener gives them a certain amount of protection. It is well known that a good covering of snow will enable such plants to pass through the longest and severest frosts, and the gardener, to attain the same end, will either earth them up, cover them with dead leaves, or with a heavy mulch of strawy manure, or even content himself with working some straw, Bracken or Spruce boughs among the plants.

Now, in the case of Tea Roses and similar plants, we feel convinced that winter killing is generally due to drought, and that the effect of the protection is not to keep the plants warm, but to check the evaporation from the surface of the shoots.

Even through the winter the living shoot of a plant is always giving off a certain amount of water-vapour. This is especially the case when the shoot is soft and unripened. The water thus lost has to be made good by root-absorption. The rapidity of the evaporation will depend on the dryness of the atmosphere surrounding the plant, and the air is generally saturated in the soft, warm days of winter, but often extremely dry during a hard frost. We can see the drying power of the air during a frost by the way clothes will dry when hung out, even though they may begin by freezing into boards, and by the disappearance of ice from paths, though no sun falls upon them. The rate at which evaporation takes place from any object is also very much dependent upon atmospheric conditions; if the air be both dry and rapidly renewed, the amount of water taken from an exposed body may become very great. Now, wind and frost do not generally go together, but it does happen sometimes that a bitter east or north wind springs up when the ground is frozen, and it is just at such times that the gardener must be on the look-out for damage. Evaporation then becomes very active from the exposed shoots of the plant, and if the ground is at the same time frozen the roots are incapable of taking in water, so that there is nothing to balance the loss from the shoots. The taking in of water by the roots is not a mere mechanical process, but a vital action, depending upon the living cells and ceasing when their activity is suspended, as it is at temperatures near or below the freezing point. If, then, the shoots of a plant keep losing water for a few hours in this fashion and none comes in to replace the loss, they eventually wither and are killed just as would happen if they were exposed to a fierce, drying sun with the soil short of water. The ease with which the plant loses water is intensified by the fact that the cold also plasmolyses the cells of the plant, causing them to shrink up and part with some

of their water, whereupon such water will be much more readily removed by evaporation than if it had remained in connection with the protoplasm. A little consideration will show that this point of view explains a great many of the features of winter killing, though doubtless not all. In the first place, the worst damage is not done by the lowest temperatures, but, when wind comes with the frost. We have a vivid recollection of a particular day of wind and frost two winters ago, which killed many delicate plants that had survived previous colder days. The young, soft wood always suffers most, because the soft tissues can pass water on so much more readily to the evaporating surface, and the rate of loss is thereby greater. Then, again, the effect of such protection as a handful of Bracken stuffed into the head of a bush, a bundle of straw tied over a Standard Rose, or even a mulch of stable litter on the ground can only be not to keep the plants warmer, but to protect them from evaporation. In the long winter nights there is ample time for the temperature inside the protected head of a Standard Rose tree to fall as low as that of the air outside; it is only under a deep mulch or a thick coating of snow on the ground that the temperature may be expected to be appreciably higher than on the surface. But all these coverings will play a great part in checking evaporation, both by keeping off the wind from the shoots of the plant and by surrounding them with material which is itself giving off a little water-vapour, as snow, for example, does at many degrees below freezing point.

Just in the same way we may often notice the effect of shelter hedges in saving plants from destruction by frost; the temperature will not have been much higher, except immediately beneath the hedge, where the ground is protected from radiation; it is the checking of the wind that has saved the plants. Of course, lessened evaporation does mean a somewhat higher temperature, because heat is always withdrawn from the body that is drying up, still such temperature-differences as are due to this cause are too small to make the difference between destruction and survival.

One last illustration we may take: the worst results of a frost are always expected when bright sunshine follows, so that the frozen tree or shrub is suddenly thawed by the warm rays of the sun. The damage is usually set down to the disorganisation of the tissues which ensues from the sudden thawing, but if any break up of the tissues does occur, it must happen at the moment of freezing, for water expands in the act of turning into ice, not when thawing afterwards. If you have a water pipe frozen, the burst has taken place as the water froze, and there it will be however carefully and slowly you thaw the ice out afterwards. The destructive action of the sun comes probably from the increased evaporation it sets up from the shoots of the plant at a time when the roots are still inactive through the cold. The best chance of saving such a plant is well known to be to spray it with water at once while it is in its frozen state, for if it can only be kept wet the sun's rays have no ill effect. We remember one May morning, after an untimely frost of 12° or 14° on the grass, going out early to look at a bed of Tulips in full

flower; as the sun came on the bed they began to wilt and bend, until about 8 o'clock all the flower-heads were lying on the ground and the leaves were soft and flaccid; in this case there could be little doubt but that the plants were suffering from drought rather than from frost.

Of course, as we have said above, we do not suppose that drought brought about by evaporation when the roots are inactive is the only factor in winter killing, but it is an important factor, the proper appreciation of which is a great help in arranging means of protection for the winter. We need not fear piling up damp materials round our Tea Roses, because we want to maintain a moist atmosphere round them; all the same, thick coverings are unnecessary. What we are aiming at is shelter, not warmth, and a piece of paper will keep off the wind as effectively as a thick thatch of straw.

The London County Council will shortly make an appointment to the post of Chief Officer of the Parks Department. The importance of this post may be judged from the fact that the chief officer has the responsibility for the laying out and management of all the parks, gardens and open spaces which are maintained by the Council. His work includes the supervision of the conservatories, and he is responsible for the discipline of the staff employed in the parks-service. Inasmuch as there are no fewer than 114 parks, gardens and open spaces, the total extent of which amounts to upwards of 5,000 acres, and inasmuch as the parks-service employs nearly a thousand men, the post of chief officer is onerous. We are glad to observe that one condition of the appointment is a knowledge of surveying, landscape gardening, forestry and horticulture. Though why horticulture, which embraces surveying and landscape gardening, should be placed last in the series of required qualifications is not clear. The position should certainly be filled by a trained gardener, one who not only understands the laying out and maintenance of public parks, but who also possesses a wide knowledge of trees and shrubs.

We do not know what steps the Council proposes to take in order to obtain expert advice in the important task of selecting the right man, though it is evident that some advice of the kind is essential. All London is interested in the Council parks, and appreciates the large amount of excellent work that has been done since the parks passed under the control of the Council. Hence it is in no grudging spirit that we say that there is still no little room for improvements, especially in the direction of greater variety of treatment. Particularly we should like to see a serious attempt made to increase the number both of tree species and of shrubs and trees planted for autumn and winter effect. The difficulties which have to be met are innumerable, and the results which have been obtained, in spite of these difficulties, are so excellent as to make us confident that, with the appointment of a first-rate horticulturist who has specialised in park-management, the London parks will become in a few years as fine as any in Europe. We understand that applications from candidates must be made by the 17th inst.

HORTICULTURAL CLUB.—The next house dinner of the club will take place on Tuesday, January 11, at 6 p.m., at the Hotel Windsor, when Mr. J. A. ALEXANDER will give a lecture on "The Garden of the East—Ceylon's Isle." The lecture will be illustrated by original lantern slides.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The voting papers for the election on the 20th inst. have just been issued. They contain the names of no fewer than 72 applicants for pensions. It is distressing to learn that from this great number only 20 vacancies are to be filled, although it may be hoped that a few additional pensioners may be selected immediately after the election. Circumstances prove only too obviously that this great Institution is in need of a larger measure of support. However, there is one satisfactory feature of the present lists, for they appear to show that a larger number of gardeners are becoming life members or subscribers to the Institution. Amongst the 72 applicants there are 60 who are subscribers, or the widows of subscribers. Five are over 80 years of age, and 24 exceed the age of 70. But the greater number of applicants are younger men who, for various reasons, have become prematurely broken down in health, and thus rendered incapable of continuing their employment. It is scarcely necessary to dwell on the hopelessness of such cases unless they can be given such a pension as that which the Gardeners' Royal Benevolent Institution distributes. The Institution is doing a noble work, and everything that can be done should be done, to support and sustain the executive in the trying circumstances shown in the long list of candidates.

GEORGE MONRO CONCERT COMMITTEE.—The balance-sheet for the 13th annual concert, held on February 25, 1909, is before us, and we note that the receipts were £289 3s. 6d., including cash in hand £61 10s., whilst the disbursements were £226 5s. 10d., leaving a balance of £62 17s. 8d. Grants of £50 8s. have been made to charity organisations, including £15 15s. to the Gardeners' Royal Benevolent Institution and £10 10s. to the Wholesale Fruit and Potato Trades Benevolent Society. The next concert will take place on Thursday, February 17, at the Queen's Hall, Langham Place, W. There will be an excellent programme of vocal and instrumental music, including performances by the band of the Coldstream Guards.

DR. WILLIAM CARRUTHERS, F.R.S., writes us as follows from the London Botanical Laboratory and Seed-testing Station, 44, Central Hill, Norwood, S.E.:—"My partner, Mr. H. T. Güssow, having been appointed Botanist to the Agricultural Department of the Government of Canada, I have resolved to retire from seed-testing and plant-disease work. Prof. BIFFEN, M.A., of the Agricultural Department, The University, Cambridge, has been appointed to succeed me as Botanist to the Royal Agricultural Society of England. He is organising his laboratory and assistants so as to take over the work of this firm also. All communications should now be addressed to him at Cambridge."

A TRADE PAMPHLET.—We have received from Messrs. WATKINS & SIMPSON a copy of a pamphlet containing illustrations of the firm's trial grounds, seed offices and warehouses, also portraits of the governing director, Mr. ALFRED WATKINS, and the more important members of the staff. This wholesale seed business was established in 1876, and has recently been formed into a private company, but, we are informed, there has been no public issue of shares, nor outside capital introduced.

ANNUALS AND DIRECTORIES.—The crop of Garden Annuals, Almanacs, Directories, Year-books, and similar works of reference is larger this year than ever. Amongst the most valuable of these to the horticulturist are the gardeners' address-books. Besides giving the names of the gardeners, these contain separate lists, giving the name of their employers' residences, which are also enumerated again under the respective counties, so that it is an easy matter to trace an address.

The Horticultural Directory and Year-book is issued for the fifty-first time. In addition to the addresses, the work contains many pages of garden receipts and hints, but these need considerable revising to bring them up to date; some of the receipts for fungicides and insecticides being out of date. The work contains a list of plants, fruits, and vegetables certificated by the Royal Horticultural Society, National Chrysanthemum, National Rose, and National Dahlia Societies, from October, 1908, to September, 1909. The list of nursery and seed firms will be found useful: these are enumerated alphabetically and again under each county. The addresses of important nursery and seed firms on the Continent and in America are also given. The volume includes information upon the principal gardening societies, the mutual improvement and debating associations, and the principal public parks and botanic gardens.

Garden Annual and Address-book.—This also gives the names of the principal gardens of the United Kingdom with those of the occupiers and gardener. Novelties in plants, fruits, and vegetables certificated during 1909 are described; this part of the work has been considerably extended, the awards from some of the principal provincial societies being now included. There is a useful almanac at the beginning of the book, and opportunity is there taken to enumerate seasonable garden operations for the various months. The addresses of nurserymen and secretaries of societies are included.

The Live Stock Journal Almanac appeals more to the farmer, but there is much in it that is of interest to the small-holder and garden bailiff, especially the chapters on poultry and eggs, pigs, and breeds of dogs.

Vinton's Agricultural Almanac and Diary contains many pages of useful statistics, which show at a glance the year's crops, average market prices, value of various foods, manurial value of feeding stuffs, wages and discount tables, and similar valuable data. Many of the pages are reserved for notes, and these are ruled so that events can be recorded each day.

Who's Who has become indispensable as a work of reference. If the address and proper title of a person prominent in the eye of the public is required, together with a biography in miniature, *Who's Who* will supply the information. A companion volume, *Who's Who Year-book*, is a compendium of information concerning persons connected with the public service, from the King to the borough recorders. The comprehensive nature of this little book is seen in the lists of the principal Royal and other societies and their secretaries, University professors, race meetings, railways, clubs, ambassadors, county councillors, schools, &c.

The Writers' and Artists' Year-book forms another work of this series. It contains the lists of journals and magazines, publishers, press-cutting agencies, literary agents, colour-printers, and art agents.

A more pretentious volume is the *English-woman's Year-book*. In dealing with the various occupations of women, agriculture and

horticulture have their places. Under the former heading, details concerning the employment of women in market-gardening and fruit-picking are given. Concerning the training of lady gardeners it properly states that it is not possible that any girl can learn in two, or even three, years to become a first-rate gardener. The list of garden colleges and schools for women is a fairly long one, and includes several institutions where the forcing of vegetables by what is known as the intensive system of cultivation figures largely in the curriculum. On such questions as education for women, the Civil Service, pastimes and sports specially suitable for women, literature, philanthropic work, charities, and kindred subjects, this work affords many useful particulars.

An almanac and directory is issued by the Gloucester Railway Carriage and Wagon Co., Ltd., Gloucester, for the fifteenth year. From the short history of Gloucester we learn that much business is still conducted in the municipal markets, and that the ancient custom of hiring farm servants still takes place on the first, second and third Mondays after Barton Fair, which is held on September 28 and 29.

One and All Gardening.—This little work is issued by the Agricultural and Horticultural Association (One and All). It contains several cultural articles by the late D. T. FISH and RICHARD DEAN. A very readable article on the Outdoor School is from the pen of W. FRANCIS RANKINE. The Hon. A. J. STANHOPE writes on some legends of plants.

Webster's Foresters' Diary and Pocket Book.—The eighth edition provides ample room under each day of the year for recording events, and several of the pages at the back are ruled for a cash account. There are more than 70 pages of short notes relating to trees and forestry in general, and a list of foresters and assistant foresters. The book is bound in red leather with gilt lettering and edges, forming a convenient and handsome pocket-book.

The Garden Life Pocket Diary.—This little publication provides information on gardening operations for the amateur. It also contains a diary in which he may record gardening memoranda.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on January 10, at 8 p.m., when a paper will be read by Mr. JOHN WILMOT on "The Housing, Town Planning, &c., Act, 1909." A discussion will take place on this paper, and on Mr. DAVIDGE's paper on "Town Planning Systems," which was adjourned from November 22 last. The adjourned discussion on both papers will be continued on Monday, January 24.

THE ROYAL BOTANIC AND HORTICULTURAL SOCIETIES.—Mr. PEMBROKE STEPHENS has addressed the following letter to the Council of the Royal Horticultural Society in reply to the letter from the Rev. W. WILKS, printed in our last issue, p. 8:—"No one can doubt for a moment the interest felt by the Royal Horticultural Society in the Royal Botanic Gardens. If they did, the letter of invitation written by the President of the Royal Horticultural Society to the President of the Royal Botanic Society many weeks ago, and subsequently published by yourself, I think, in *The Times* and other newspapers—together with the facilities afforded later by your society for the conference at Vincent Square, must show any such doubts to be unfounded. What has been felt, however, is that, in matters of negotiation or business between any two societies, mere general expressions of goodwill, however gratifying in themselves, fail to bring about a clear understanding and satisfactory results,

and the Royal Botanic Society accordingly, in their reply of December 7, invited the Royal Horticultural Society to make their proposals more clear and definite, especially as to finance. If, on reflection, as I gather from your letter, the Royal Horticultural Society now feel that they would rather not make any proposals, the Royal Botanic Society could only respect and take note of their decision. But this would dispose of the idea which seems to have been industriously circulated in various quarters of a possible 'amalgamation with the Royal Horticultural Society.'"

THE POTATO CROP IN IRELAND.—It appears from a report issued by the Department of Agriculture and Technical Instruction for Ireland that the average yield of the Potato crop in Ireland in 1909 is estimated at 5.5 tons per statute acre, as against 5.4 tons in 1908, and 4.4 tons for the 10-year period—1899-1908. The acreage of the crop in 1909 amounted to 579,799 acres, as against 587,144 acres in 1908, a decrease of 7,345 acres, and the total produce of the crop in 1909 is estimated at 3,202,819 tons, as against



MR. HANS GÜSSOW.
Botanist to the Canadian Government,
(See p. 27.)

3,199,678 tons in 1908. The quality is on the whole very good. The returns show that in most of the southern counties the crop exceeds that of last year.

THE FLAX INDUSTRY IN IRELAND.—The vice-president of the Department of Agriculture and Technical Instruction for Ireland has appointed a committee to inquire into the present state of the Flax-growing industry in Ireland and the causes which are contributing to the decline of that industry, and to submit recommendations. Mr. JOHN R. CAMPBELL, B.Sc., assistant secretary in respect of the Department of Agriculture and Technical Instruction for Ireland, is chairman, and the other members include: Mr. HAROLD A. M. BARBOUR, M.A. (Messrs. William Barbour & Sons, Ltd., Flax spinners); Mr. JAMES CRAMFORD (York Street Flax Spinning Co., Ltd.); Mr. JOHN W. STEWART (Flax grower and scutchmill owner); Mr. JAMES STEWART, J.P. (Flax grower); Mr. BERNARD MEENAN, J.P. (member of Board of Conservators of Fisheries for Coleraine district); Mr. JAMES SCOTT GORDON, B.Sc. (chief Agricultural Inspector, Department of Agriculture for Ireland); and Mr. JOSEPH HINCCLIFF (Agricultural Inspector, Department of Agriculture for Ireland).

NOTICES OF BOOKS.

* THE SMALL GARDEN BEAUTIFUL.

THE author of this little book upon the planning and planting of small gardens has set himself a difficult task, for, of all phases of gardening, the problem of making a small plot of ground always attractive can only be fully appreciated by those who have attempted it.

The writer appears to have succeeded in his task; from beginning to end the book is full of suggestions given in a clear and practical way, though not encumbered by technical terms which would only be understood by the professional gardener.

The aim of the book is to tell people how to deal with the plots of ground that are commonly attached to small residences in towns and suburbs. These generally take the form of a parallelogram, varying in size from 10 yards to 20 yards or more wide and from 30 yards to 100 yards long. From this area is taken the space for the house and the forecourt. Therefore there is not a large area for the garden.

The difficulty generally arises from attempting too much. When an amateur is thoroughly imbued with the love of gardening, there is usually no limit to his ambitions. Sometimes he attempts to grow Roses in sand and gravelly soil, and Rhododendrons and Azaleas in a soil containing much chalk.

The small gardener derives enjoyment from his garden in proportion to the knowledge he possesses of its inmates. In many cases he is acquainted with every phase of a plant's growth, and familiarises himself with its likes and dislikes in a most intimate way.

There is much difficulty in advising an amateur, unless one knows the nature of his soil and surroundings, and, what is also important, the extent of his purse. The author deals with the question of cost in a practical manner. For instance, he gives an example of the cost of the groundwork and material necessary for a plot 180 feet by 40 feet, and, deducting the heavy item of £9 16s. for labour, £18 is not an extravagant estimate, but when he states that the plants for the herbaceous border would cost £15, this sum for plants alone will alarm the small gardener. It is a pity that he does not explain in greater detail the various ways of economising by raising perennial herbaceous plants from seed or propagating them by division after the first season's growth. Lists of choice, hardy, and half-hardy annuals, with their culture, would have been useful, as these would produce an immediate summer effect of colour during the first season, whilst the perennial plants are but small and few in number.

Descriptive lists of herbaceous perennials and climbers are given, but the reader is not told what he is to plant in order to screen boundary fences or other objectionable things, so as to secure to the small garden that privacy which is so desirable.

The latter part of the book deals with the details for a small kitchen garden. This part is written in a particularly clear and practical way, and the monthly calendar of operations is sufficient to enable a novice to grow good vegetables.

There are various plans given in the book, but these might have been more detailed and varied. The illustrations are likely to be helpful. W. G.

PUBLICATIONS RECEIVED.—*Notes from the Royal Botanic Garden, Edinburgh.* (Oilver & Boyd, Edinburgh.) Price 9d.—*Mutual Insurance of Live Stock.* Leaflet No. 221. (Published by the Board of Agriculture.)—*Prevention of Cruelty in the Destruction of Hares, Rabbits, Birds, and other Animals.* Leaflet No. 228. (Published by the Board of Agriculture.)—*Report of the Botanic Gardens and their Work for the Year 1908-9.* (The Argosy Co., Ltd., Georgetown, Demarara.)—*Journal of the British Gardeners' Association for January.*—*Forty-Second Annual Report of Agricultural and Horticultural Association's ("One and All.")*—*All About Sweet Peas,* by Mr. Robert Sydenham. (1910.) Fifth edition. (Robert Sydenham, Ltd., Tenby Street, Birmingham.)

* *The Small Garden Beautiful*, with plans and illustrations, by A. C. Curtis. (London: Smith, Elder & Co.)

CANADA.

DOMINION EXPERIMENTAL FARM.

THE reorganisation of the Central Experimental Farm of the Dominion Department of Agriculture, Ottawa, rendered necessary by the death of Dr. Fletcher, was effected several months ago. Dr. Fletcher occupied the dual position of botanist and entomologist, but it was felt that such an arrangement could not be permanently continued. Accordingly, two separate divisions, of botany and entomology, have been established under the general direction of Dr. Saunders. The post of botanist has been filled by Mr. H. T. Güssow, and that of entomologist by Dr. C. Gordon Hewitt. Both officers are now engaged in the equipment and organisation of their respective departments, with the view of rendering them practically useful to the farmers of Canada.

Mr. Hans T. Güssow is a native of Breslau, Silesia. He received his scientific training at the universities of Breslau and Leipsic. He pro-

ANDROSACE SPINULIFERA.

IN stature and robustness of growth, this *Androsace* far outstrips any other of the genus found in the same region, having much the habit and appearance of a *Primula*.

It is a species with a wide altitudinal range, from 8,000 to 12,000 feet, reaching its optimum about 11,000 feet. Naturally, owing to this distribution, it varies considerably in form, at 8,000 feet the plants found were growing in dry, barren situations, on a lime conglomerate, the foliage was much stunted with distinctly spinous apices; the scapes were short and flowers few. I am inclined to think it must have been from such specimens that the species was named, because plants from the higher altitudes, where it was most luxuriant, did not exhibit a spinous character in any marked degree. What appeared the most favourable situations were on the margins of shady Pine forests, mostly with northern exposures; there, in places, acres of ground were dominated by it to the exclusion of all other



[Photograph by George Forrest.]

FIG. 22.—ANDROSACE SPINULIFERA FLOWERING IN ITS NATIVE HABITAT IN CHINA.

ceeded to England in 1901, and in 1903 entered the botanical laboratory of Dr. William Carruthers, F.R.S., who, for 37 years, has been consulting botanist to the Royal Agricultural Society. Amongst Mr. Güssow's contributions to agricultural and scientific literature may be mentioned monographs on Clover sickness, injurious fodder and poisonous plants, bacterial rot of Potatoes and diseases, Cucumbers, Tomatoes, and cereals. In conjunction with Professor Mazé, of the Pasteur Institute, Paris, Mr. Güssow discovered the cause of a new disease affecting Cucumbers due to *Corynespora Mazei*. It is interesting to note that as Mr. Güssow obtained part of his training in this country, so also Dr. Hewitt has been trained here. If we remember rightly, he passed through the University of Manchester with distinction, and occupied the post of lecturer in Economic Zoology in that university.

herbage, and in such places the plants attain their fullest beauty. Unfortunately, the illustration in fig. 22 is from the first-mentioned habitat and scarcely does the species full justice. The scapes, in robust specimens numbering as many as four or five, rise to a height of 10 to 12 inches. The flowers are a delicate rose-pink with the eye yellow, of good size, 10 to 30 forming a head. They are borne on comparatively short pedicels, thus, when in full bloom, the lowermost are forced slightly downwards, making the umbels rounded and compact, after the style of *Primula denticulata*. The whole plant is covered with short silvery down.

Seed of the species was secured from plants growing at the highest altitude, and, as was expected, the plants raised from it have grown successfully for two winters in the open in this country; they flowered well last season. G. Forrest.

NOVELTIES OF 1909.

(Concluded from page 2.)

MOST sections of horticulture have benefited during the past year by the raising or introduction of novelties. Both science and gardening have received a welcome stimulus by the introduction of many new species, the most important being the introductions from China of Messrs. Jas. Veitch & Sons, through Mr. Wilson, and those from the same region sent home by Mr. G. Forrest. Messrs. Bees, Ltd., received First-class Certificates at the Royal Horticultural Society for *Primula Forrestii* and *P. Bulleyana*, both species having been introduced by Mr. Forrest. *Primula Littioniana* is another fine introduction of the same class. This was referred to in the article upon *Primulas* in China published in the *Gardeners' Chronicle* for November 20, 1909.

MESSRS. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, continue to show improvements in *Nepenthes*, *Begonias*, *Streptocarpus*, *Gloxinias* and *Hippeastrums*. An Award of Merit was obtained for a strain of *Gloxinias* shown on August 3. Of *Hippeastrums*, their new varieties, Marcus, Enid, Omar, and Romola, were illustrated in the *Gardeners' Chronicle*, April 24, p. 266. *H. Gracchus*, a crimson self, also received an Award of Merit. Other new plants were *Cineraria flavescent*, a new yellow hybrid strain; *Rhododendron Souliei*, a fine, dwarf red-flowered species, which obtained a First-class Certificate on May 18; *Primula Unique* improved; *Pæonia Veitchii*; *Spiræa Veitchii*; *Gentiana Veitchiorum*, a charming, tufted variety, with dark blue flowers; *Vitis Wilsonæ*; *Actinidia chinensis*; and *Canna Roi Humbert*. A certificate for the *Canna* was also given to Sir Trevor Lawrence, Bart., K.C.V.O. An interesting set of new Chinese *Rhododendrons* is also in the possession of Messrs. Jas. Veitch & Sons.

Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. Chapman), who has shown *Hippeastrums* in fine groups at the meetings of the Royal Horticultural Society and at the Gloucester Show, exhibited many new forms, the white (or nearly white) varieties and the deep blood-red selfs being specially fine. The best three were *Pinkie*, white with rose veining; *Harvest Moon*, a pretty, light form; and *Phœbus*, dark scarlet.

MESSRS. R. P. KER & SONS, Liverpool, also have had great success with *Hippeastrums*. They obtained an Award of Merit for the large, white and crimson *H. Magnificent*, shown on April 6.

LEOPOLD DE ROTHSCHILD, Esq. (gr. Mr. J. Hudson), whose Japanese and water gardens at Gunnersbury House are replete with the best-coloured *Nymphæas* and *Nelumbiums*, received awards for *Nymphæa James Brydon*, *N. Mooreana*, and *Nelumbium speciosum Osiris*.

MESSRS. H. B. MAY & SONS, Edmonton, were awarded a First-class Certificate for *Pteris Aquilina congesta*, a remarkable form of the common Bracken, and *Nephrolepis splendens*. This firm also showed the new *Scolopendrium vulgare crispum multifidum*, and *S. v. muricato-fimbriatum*.

MESSRS. T. ROCHFORD & SONS secured recognition for *Nephrolepis lycopodioides*; and Messrs. STUART LOW & Co. for *N. magnifica*. Messrs. ROCHFORD obtained an award for *Polypodium glaucum crispum*; and Messrs. SANDER & SONS, St. Albans, for the distinct new *Adiantum grossum*. Messrs. Sander also introduced the elegant Palm *Ptychographis Siebertianum*, the useful *Ficus australis variegata*, and other decorative plants, which were well displayed in their magnificent group at the last Temple Show.

Bougainvillea Rosa Catalina, for which Col. PETRE, of Norwich, was given a First-class Certificate on April 20 last year, appears to be one of the best and most floriferous *Bougainvilleas*.

HARDY PLANTS.

These have commanded a full share of attention during the past year, and have rivalled the

Orchids in the numbers in which they have been exhibited at the Royal Horticultural Society's meetings. *Saxifraga decipiens* Arkwrightii and *S. d. Miss Wilmott*, shown by Messrs. BAKERS, Codsall, Wolverhampton; *S. apiculata alba*, from the GUILDFORD HARDY PLANT Co.; and *S. Clibranii*, from Messrs. CLIBRANS, Altrincham. *Iris Sir Trevor Lawrence* and *Sir Dighton Probyn* were both raised by the late Sir Michael Foster and certificated to Mr. AMOS PERRY, who, among other novelties, had *Astilbe rivularis gigantea*, a strong-growing bog plant; and *Lithospermum prostratum Heavenly Blue*.

Among Messrs. WALLACE & Co.'s novelties were *Iris Ed. Michel*, *Tulipa The President*, a pretty, early cottage Tulip, and *Eremurus Sir Michael*. *Geum coccineum* Mrs. J. Bradshaw and *Marguerite White Perfection* were shown by

MERRYWEATHER & Co., at Holland House; *Ariel*, by Messrs. PAUL & SON, Cheshunt; *Grace Molyneux*, Duchess of Wellington, and *Walter Speed*, all three fine novelties, from Messrs. ALEX. DICKSON & SONS.

Of the novelties recognised by the National Rose Society on July 2 were *Countess of Shaftesbury* and *Lady Pirrie*, from Messrs. HUGH DICKSON & SONS. One of the brightest and best Roses seen for many years past was *Juliet*, of a cinnamon-scarlet colour, shown by Messrs. W. PAUL & SON, Waltham Cross, on July 24, when it received an Award of Merit.

At the National Rose Show at Luton, Gold Medals were given to *Leslie Holland* (HUGH DICKSON & SONS), *Mrs. Hubert Taylor* (ALEX. DICKSON & SONS), *Ethel A. Malcolm* and *Mrs. Maynard Linton* (S. MCGREEDY & SONS). At the

to *Homespun* (H. D. PHILLIPS, Olton), and *Great Warley and Queen of the West*, from Mr. W. T. WARE; and *Awards of Merit* to *Bedouin* (E. M. CROSFIELD), *Cossack* (C. DAWSON), *Poeticus St. George* (BARR & SONS), *White Slave* (H. D. PHILLIPS), *Giraffe* (CARTWRIGHT & GOODWIN). Messrs. CARTWRIGHT & GOODWIN also secured awards for *Poetaz Scarlet Gem*, and *Red and Gold*.

CARNATIONS.

Among the novelties of the year were the varieties *Rose Doré*, a fine tree Carnation, shown by Mr. W. H. LANCASHIRE, Guernsey; *Lady Coventry*, a new carmine flower of the "Malmaison" type, from Messrs. W. CUTBUSH & SONS; *Carola*, from Mr. ENGLEMAN, Saffron Walden; *May Day* (STUART LOW & Co.); *Fiery Furnace* (BLACKMORE & LANGDON); and several new border varieties from Mr. JAS. DOUGLAS, Great Bookham. These included the gold-buff *Elizabeth Schiffner*, and the red, maroon-edged *King of Spain*, which secured Awards of Merit on August 3. Mr. DOUGLAS also obtained several awards for new Auriculas.

SWEET PEAS.

Since these have been generally regarded as exhibition flowers, greater interest has been shown in them. Some of the varieties which have gained awards or come into prominence during the past year include *Mrs. Henry Bell Improved* and *Masterpiece*, of Messrs. DOBBIE & Co., Rothesay, who also obtained the Royal Horticultural Society's Silver Flora Medal for the great improvement in size, colour, and floriferousness shown in their group of *Rothesay Aquilegias*, on June 8, and have done so much to improve bedding Violas and other popular flowers. Sweet Peas "*Paradise Apple Blossom*" (Miss HEMUS), *Mrs. Townsend* (JARMAN & Co.), *Doris Usher* (A. E. USHER), *Edna Unwin*, and *Colleen* (W. DEAL), and many other novelties have also appeared, and yet experts say that there is a wide field for future endeavours. Some new and good varieties gaining awards were *Blanche Stevens*, *Sterling Stent*, *Chas. Foster*, *Clara Curtis*, *Dazzler*, and *Sunproof Crimson*.

In Chrysanthemums, Dahlias, and other florists' flowers, novelties have been produced by the well-known specialists and duly recorded in the columns of the *Gardeners' Chronicle*.

Begonias have received fewer certificates than in former years, but *B. Patrie*, a dwarf, rose bedder, from Mons. LEMOINE, Nancy; *Saturne*, a compact bedding variety, from Messrs. CANNELL & SONS; and *Pink Pearl*, of Messrs. BLACKMORE & LANGDON, are among the more desirable sorts.

Hybrid Freesias of various colours have been well shown by Mr. HERBERT CHAPMAN, Rye, Sussex, Mr. C. G. VAN TUBERGEN, Junr., Haarlem, and Messrs. BARR & SONS, Covent Garden. Messrs. BARR's *Freesia Rose Queen*, which received an Award of Merit, February 23, is a charming plant for cut flowers or decoration.

The principal seed-growers, such as Messrs. SUTTON & SONS, Reading, Messrs. JAS. VEITCH & SONS, Chelsea, Messrs. CARTER & Co., High Holborn, Messrs. BARR & SONS, Covent Garden, Messrs. CLIBRANS, Altrincham, and Messrs. WEBB & SONS, Wordsley, Stourbridge, continue working to improve the strains of their favourite flowers. In every garden one visits the excellence and variation of such things as Stocks, Wallflowers, Dianthus, Phloxes, Violas, and other flowers are evident; but seldom are they seen in sufficient quantity at the floral meetings to do themselves justice. Yet a good show can be made with plants raised from seeds, as witness the fine display of *Cineraria stellata* for which Messrs. SUTTON & SONS secured an Award of Merit on March 23.

Other firms have shown new strains of *Schizanthus*, *Nemesia*, *Calceolaria*, such as the useful *C. Clibranii*; and *Primula sinensis*, both single and double, and many other pretty garden flowers.



FIG. 23.—LARGE FLOWERED FORM OF PRIMULA OBCONICA.

(See p. 29.)

Messrs. G. & A. CLARKE & Co., Dover; *Viburnum Carlesii* by Sir TREVOR LAWRENCE; and *Gladioli Lord Alverstone* and *Miss Ada Reeve* by Messrs. KELWAY & SON.

ROSES.

Some of the best and most-admired of new Roses were *Lyon Rose*, for which Messrs. T. ROCHFORD & SON and Messrs. STUART LOW & Co. received awards on May 22; *American Pillar*, from Messrs. H. CANNELL & SONS; *Coquina*, a single, pink *Wichuraiana* variety, shown by Messrs. W. PAUL & SON and Messrs. HOBBIES, LTD., at the Temple Show. Messrs. HOBBIES, LTD., also secured awards for *Rose Margaret* and others. *Mrs. Taft and Flower of Fairfield* were shown by Messrs. STUART LOW & Co.; *Jessie*, a pretty *Polyantha* variety, by Messrs.

National Rose Show, on September 16, Gold Medals were given to *Claudius*, a Hybrid Tea, and one of the finest coloured of its class (sent by Messrs. R. B. CANT & SONS), *Miss Cynthia Forde* (HUGH DICKSON & SONS), and *Mrs. Ed. J. Holland* (S. MCGREEDY & SONS). Many other new varieties have been shown, those which have met with most favour being the decorative, pillar, and Hybrid Tea Roses.

NARCISSI.

It is increasingly difficult to obtain marked improvements in Narcissi, but some worthy novelties have appeared during the year. *Queen of the West* received a First-class Certificate on April 20, when shown by Mr. WALTER T. WARE, Bath. At the Midland Daffodil Society's show, on April 22, First-class Certificates were given

The following new and rare plants and fruits have been illustrated in the *Gardeners' Chronicle* during 1909:—

Acacia giraffe, Dec. 11, p. 401.
Acanthus montanus, Mar. 27, p. 201.
Acanthus Perringii, Sep. 18, p. 194.
Actinidia chinensis, Supp. July 31.
Esculus parviflora, Feb. 20, p. 123.
Agave attenuata, Supp. Feb. 13.
Androcymbium melanthoides, May 15, p. 313.
Adiantum grossum, Jan. 23, p. 50.
 Apples: William Crump, Jan. 9, p. 21; St. Everard, Oct. 23, p. 276; Bainsack Beauty, Feb. 27, p. 142, and Rev. W. Wilks, Oct. 9, p. 251.
Aubricia Dr. Mules, June 19, p. 393.
Auricula Claud Halton, May 8, p. 298.
Aster grandiflorus, Jan. 16, p. 36.
Beaucarnea recurvata, July 3, p. 4.
Begonia Patrie, Jan. 30, p. 77.
Berberis Gagepau, Oct. 2, p. 226.
Beschorneria yuccoides, July 3, p. 8.
Bowkeria Gerardiana, Aug. 14, p. 109.
 Carnations: Lady Coventry, May 8, p. 297; Elizabeth Schiffer, Aug. 7, p. 98; Fiery Furnace, Aug. 7, p. 99; Her Majesty, July 3, p. 10; and May Day, Nov. 13, p. 323.
Chrysanthemum Mary Farnsworth, Nov. 20, p. 347.
Cineraria flavescens, May 22, p. 322.
Centema biflora, Aug. 28, p. 147.
Cleome spinosa, Feb. 20, p. 115.
Cornus capitata, Feb. 6, p. 82.
Commiphora saxicola, Dec. 11, p. 402.
Cotoneaster rugosa Henryi, Nov. 20, p. 339.
Cistus albidus, Feb. 20, p. 117.
Columna magnifica, Oct. 20, p. 301.
Cyananthus incanus, Dec. 18, p. 422.
Decumaria barbara, Supp. Oct. 9.
Doranthus excelsa var. Guldfolei, June 12, p. 383.
Erigeron macranthus, July 24, p. 53.
Elisena longipetala, Supp. Aug. 7.
Eranthemum Watten, Feb. 6, p. 89.
Euphorbia Sapina, Jan. 30, p. 66.
Ficus parasitica, Jan. 16, p. 41.
Fritillaria askabadensis, Supp. Mar. 20.
Fuchsia splendens, May 15, p. 318.
Gerberas, new, May 29, p. 350.
Gentiana ornata, Sep. 11, p. 179.
Gentiana Veitchiorum, Sep. 11, p. 178.
Gentiana Freyneana, and *G. corymbifera*, Sep. 18, pp. 202 and 203.
Halesia hispida, Aug. 7, p. 89.
 Hybrid from *Brunsvigia* × *Amaryllis Belladonna*, Supp. Jan. 23.
Hymenocallis littoralis, Supp. July 10.
Ilex Pernyi, Jan. 30, p. 75.
Iris alata, Jan. 24, p. 52.
Iris Bakeriana, Jan. 24, p. 51.
Iris reticulata and *I. Histrio*, Jan. 23, p. 55.
Iris Rembrandt, July 3, p. 3.
Kniphofia multiflora, Mar. 27, p. 196.
Lycium pallidum, Supp. Oct. 2.
Loganberry, Feb. 6, p. 86.
Meconopsis aculeata, Aug. 7, p. 91.
Meconopsis racemosa, Aug. 7, p. 92.
Mutisia Clematis, June 26, p. 415.
Narcissus Queen of the West, May 1, p. 283.
Narcissus Challenger, May 15, p. 315.
Nepenthes Dr. J. Macfarlane, Supp. Jan. 9.
Nelumbium speciosum Osiris, Supp. Mar. 6.
Notonia Grantii, April 10, p. 227.
Nymphaea James Brydon, May 1, p. 277.
Olearia myrsinoides, April 3, p. 213.
Ourisia macrophylla, June 10, p. 399.
Oxalis adenophylla, Sep. 4, p. 164.
Patrinia palmata, Oct. 9, p. 244.
Parmentiera cereifera, Dec. 25, p. 431.
Petrea volubilis, April 17, p. 252.
Pachypodium namaquanum, Dec. 4, p. 371.
Pæonia Veitchii, July 3, p. 2.
Polystichum aculeatum Druryi, Feb. 13, p. 93.
Pelargonium echinatum, Oct. 9, p. 44.
Primula Forrestii, May 1, p. 274.
Primula Bulleyana, July 10, p. 14.
Primula Littoniana, July 10, p. 14.
Primula Princess May (Carter), Mar. 27, p. 197.
Primulas in China, Supp. Nov. 20.
Ranunculus nyssanus, Sep. 4, p. 163.
Ribes Menziesii, April 17, p. 242.
Rhododendron yunnanense, July 31, p. 68.
Rhododendron bullatum, Supp. Dec. 4.
Rhododendron adenopodium, May 8, p. 291.
Rhododendron grande, May 8, p. 290.
Rhododendron Souliei, Supp. June 12.
Rhododendron Gloria Mundi, May 22, p. 331.
Rose White Killarney, May 1, p. 282.
Rose Lady Pirrie, July 17, p. 42.
Rose Mrs. Taft, July 31, p. 84.
Saxifraga Burseriana Gloria, Aug. 28, p. 157.
Saxifraga geranioides, Sep. 11, p. 181.
Saxifraga Clibranii, May 8, p. 301.
Saxifraga decipiens Arkwrightii, May 15, p. 314.
Saxifraga madida, Dec. 4, p. 370.
Sansevieria Laurentii, May 20, p. 347.
Scolopendrium vulgare fimbriatum, Jan. 26, p. 416.
Sweet Pea Masterpiece, Jan. 26, p. 417.
Sweet Peas, Mendelian characters in, Coloured Supp. July 24.
Solanum Balbisii, Jan. 23, p. 61.
Solanum nigrum, Oct. 30, pp. 290 and 291.
Sinningia Dr. M. T. Masters, Supp. Jan. 30.
Silphium albidiflorum, Nov. 27, p. 356.
 Strawberries, new, Oct. 16.
Thalictrum dipterocarpum, Supp. April 3.
Tillandsia Blokii, June 5, p. 358.
Tillandsia usneoides, Dec. 25, p. 430.
Trichosanthes anguina, Dec. 25, p. 430.
Tulipa, branched, May 15, p. 317.
Vaccinium serrulatum leucobotrys, Aug. 7, p. 88.
Veratrum californicum, Dec. 11, p. 395.
Viburnum Carlesii, May 29, p. 340.
Viburnum utile, May 29, p. 245.
 Violas, choice bedding, Supp. Sep. 18.
Wahlenbergia serpyllifolia, April 17, p. 243.
Wahlenbergia serpyllifolia dinarica, April 17, p. 243.
 Wondrberry, Sep. 4, p. 172 and Oct. 30, p. 290.

ALDENHAM HOUSE.

(Concluded from page 4.)

REFERRING briefly to the hardy fruit garden, I may say that Apricots, Peaches, Plums, and Cherries flourish on walls with a western aspect. Pears are cultivated successfully as pyramids in the open garden, and Apples as bushes.

An orchard on the eastern side of the garden, some acres in extent, exhibits the good results of deep trenching. The trees are standards and half-standards, planted wide apart. The whole of the soil was trenched, and, having known the orchard before this took place, I can vouch for the improvement this deep moving of the soil effected. A vigorous thinning of the fruits is practised by Mr. Beckett with beneficial results. I need hardly state that varieties are selected with very great care, and that the culture is of the highest.

The glass structures at Aldenham are not extensive, but distinctly utilitarian in character. Grapes, Peaches, and Nectarines are produced in quantities over a long season, and Melons are cropped from May until November. Figs also are remarkably well grown.

Amongst indoor plants there are some few specialties, and the strain of *Streptocarpus* from this garden is well known. Mr. Beckett has raised many new types of this greenhouse flower; one, of a pure white, is a fine addition, and there is also an exceedingly rich purple strain, to which the name of Royal Purple has been given. *Euphorbia jacquiniæflora* and *Thysacanthus rutilans* are other special subjects that are cultivated to perfection. Cyclamens are represented by a fine batch each year. Crotons in variety are richly coloured, the plants being remarkably fine specimens.

THE KITCHEN GARDEN.

Every person interested in gardening, and especially in vegetables, knows that produce from this garden is pre-eminent in quality. Eighteen gold medals have been won by Mr. Beckett for vegetables—surely a record! Several acres of land are cropped with kitchen-garden produce, and the secret of success is thorough cultivation. The natural soil is clay, but it is cultivated to a great depth. Mr. Beckett is the author of a book on vegetables, and this is of great value to other cultivators.

NEW CHINESE PLANTS.

The collection of plants at Aldenham, and especially of shrubs and trees, is a very extensive one, and novelties and new species are eagerly added by the enthusiastic owner, who received a portion of the immense number of seeds collected by Mr. E. H. Wilson during his last trip to China. A remarkable collection of trees and shrubs from this source, including as many as 600 species and varieties, are now to be seen growing in the garden at Aldenham. Some are in boxes, many in pots, and others are planted out. There were several who participated in the result of Mr. Wilson's late travels. It is but 20 months since the seeds were received, but they germinated well, and the growth since is remarkable. The bulk of the species were collected from high altitudes, therefore it is expected that the majority will prove hardy in this country. Of *Rubus* there are more than 40 species, including *innominatus*, *flosculosus*, *ichangensis*, *rosæiflorus*, *bambusarum* (with narrow leaves and dark-coloured stems), *Coreanus* (a distinct and attractive plant, with white stems and bronze leaves), *corchorifolius* and *irisanus* (with round leaves). Of *Berberis* there are as many as ten species, one being new to science.

There are also some 15 *Clematis*, including *C. Soulieana*, *C. Prattii*, and *C. Armandii*. *Acers* include *A. reticulatum*, *A. Henryi*, and *A. pictum* Mono. *Rhus vernicifera* and *R. Sylvestris* were also noticed, and half-a-dozen forms of *Evodias*. Of *Vitis* species there are 30 at the least, including *V. megalophylla*, and new forms of *V. sinensis*.

Mulberries are represented by, amongst others, *Morus cathayensis*. *Stranvæsia undulata* is effective with its bright red berries. The collection also includes specimens of *Ilex Pernyi*, *Lespedeza*, *Liquidambar* in variety, Chinese forms of *Liriodendron*, *Dentzia*, *Roses* in quantity, *Ribes* in variety, one very effective when in fruit; new species of *Phellodendron*, several species of *Philadelphus*, *Styrax*, *Cornus*, *Piptanthus*, *Actinidia*, *Alnus*, *Elæagnus*,

Hydrangea, *Ehretia*, *Dalbergia*, *Buddleia*, *Viburnum*, *Staphylea holcarpa*, *Pyrus*, *Prunus*, *Hypericum*, *Jasminum*, and *Ligustrum*. *Sinowilsonia* is a new genus, and is represented by *S. Henryi*. *Spireas* include the new *S. Veitchii*. There are also several *Cotoneasters* suitable for rockeries. *Ailanthus Vilmoriana* has long leaves and stems studded with red spines. There is also a new species of *Diervilla*, with richly-coloured leaves. *Edwin Molyneux*.

ALLAMANDA HENDERSONII.

WE have in a small stove in these gardens a plant of this showy species, trained on the roof, covering an area of 13 feet by 3 feet 9 in. In 1906 it was only a small plant growing in a 5-inch pot, and in June of that year it was potted into an 8-inch pot. It flowered well the same season, and the next year it was pruned and potted into a 12-inch pot. The largest inflorescence, the first year after this potting, had 66 flowers. The largest flower-spike in 1908 had 85 flowers, the total number of flowers borne during that season being 1,963, on 25 spikes.

During the past season (1909) the longest spike gave 66 flowers, the largest number open at one time being 98, and the total number developed was 1,900, on 38 spikes.

The shoots were cut back on May 26, for the double purpose of getting the centre of the plant furnished and to confine the plant to its allotted space. The flowering season of this *Allamanda* extends from the end of June to the end of December.

The plant is pruned about the middle of January, cutting it back to within 15 inches of the pot, and, wherever possible, removing all wood more than two years old.

When the new growth commences, the plant is turned out of the pot, the old soil is shaken away, and the plant is repotted in the same size pot, in a compost of two parts fibrous loam, one part peat, a good sprinkling of sharp sand, and a 4-inch potful of Thomson's vine and plant manure.

As the shoots grow they are tied to the wires, and as soon as the flower-spikes show, all other young shoots are pinched out immediately they form, with the exception of a few shoots from near to the bottom wire, which are required for furnishing the centre of the plant with flowers.

When growth is active and the flowering stage is approaching, a dressing of fibrous loam and cow manure is placed in the form of a dish on the top of the pot. When the plant has rooted well into this compost, frequent doses of liquid manure, made from cow dung, and a patent manure are given. *James Winchester, Windle Hall Gardens, St. Helen's, Lancashire.*

PRIMULA OBCONICA.

IN common with many other *Primulas*, this species is a native of China. It is a favourite greenhouse plant, owing to its free-flowering habit and long season of blooming, extending in some instances almost throughout the year. But the flowers of the older type left something to be desired in the matter of colour. In recent years, however, new varieties have been raised which produce greatly improved flowers both in size and colour, the shades ranging from nearly pure white to dark red. The variety illustrated in fig. 23 represents one of these improved strains known as *hybrida gigantea*. *Primula obconica* requires a light, but fairly rich, compost, such as turfy loam with some leaf-mould, peat and a little sand mixed with it. The usual method of propagation is by seeds, but the crowns may also be divided for the purpose of perpetuating the best varieties.

It has been frequently pointed out in these columns that *Primula obconica* cannot be handled by some persons without the foliage causing severe irritation to the skin. This danger may be prevented if gloves are worn during potting operations, and on other occasions when it is necessary to handle the plants.

COLA ACUMINATA.

THE Cola-nut tree is a native of tropical Africa, and it is cultivated in the West Indies, Brazil, and other tropical countries. It forms a tree about 40 feet high, and produces racemes of yellow flowers and alternate leaves, these latter being 4 to 6 inches long. The nuts are eaten by the negroes of West Africa and natives in the West Indies as a condiment. The seeds are about the size of a Horse Chestnut, and the negroes chew a portion before each meal for the purpose of promoting digestion. The nuts are also used medicinally, and are sometimes said to have the power of rendering tainted water wholesome. In recent years the Cola-nut has been introduced into articles of food in this country on account of its stimulating qualities. The flowers are unisexual, and in their native habitat are said to be streaked with purple. The illustration in fig. 24 is from a photograph taken in Ceylon by Mr. Hugh F. Macmillan.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT BURFORD, DORKING.

ONE of the pleasures of a visit to Burford, the residence of Sir Trevor Lawrence, Bart., K.C.V.O., is the opportunity it affords of seeing a large number of pretty species in bloom that are not to be seen in other gardens. In addition, Sir Trevor Lawrence has carefully guarded at Burford a number of connecting links with the past history of Orchidology. One of the most interesting of these latter recently in bloom was *Lælio-Cattleya exoniensis*, an original specimen obtained from Messrs. Jas. Veitch & Sons about the year 1865. *Dendrobium bigibbum album* has been in the collection 29 years, and many other extremely rare plants, imported many years ago, and lost to most gardens, still thrive at Burford under the care of Mr. W. H. White, who has had charge of the collection for so many years.

The Catasetums form one of the best collections in the country, and afford a useful object-lesson in the manner in which these difficult plants should be grown. Briefly, it may be said that they are cultivated at Burford in the same manner as the deciduous *Dendrobiums*. They are grown in baskets suspended from the roof of a warm, intermediate house where they have been liberally watered while making the growth, which at the present time is fully completed in the greater number of the plants. They, therefore, have already been suspended in the cooler dry house where the *Dendrobiums* are rested, where they will receive very little, if any water, until growth commences again in spring. The plants which have not yet completed their growth will be removed as they complete their pseudo-bulbs and lose their leaves.

Cycnoches and *Mormodes* are treated in the same way. If this method of culture is adopted where these plants are not satisfactory, an improvement will soon be seen. Failure generally comes from growing the plants in the stoves and continuing to water them after the resting season has arrived. It is interesting to see the development of the roots, seldom noticed except in freshly-imported plants, the main roots branching freely and sending forth numerous fine roots pointing upwards all over the surface, the enormously increased facilities for taking up nourishment fully accounting for the fine, clean pseudo-bulbs, and strong flower-spikes which the plants bear.

Experiments which Sir Trevor Lawrence has carried out with freshly-imported masses of *Angraecum Kotschyi* also point in the same direction. The plants are suspended from the roof of the moist *Phalænopsis* house, without being basketed or potted, but merely hung up as they arrived. New roots have pushed out freely and are arranged around the plants, reaching far down in search of moisture. *Angraecum caudatum* and some other *Angraecums* which naturally grow on

trees hanging over rivers also thrive best suspended in a moist atmosphere, and with but little *Sphagnum*-moss about them.

On the occasion of this visit few of the showy Orchids were in flower to distract the attention from the pretty and curious species which appear in abundance. In the *Odontoglossum* houses the plants were in grand health, a few being in bloom together with *Epidendrum vitellinum* and the pretty *Pinguicula caudata*, which grows so well in the cool house. Suspended overhead were many interesting species, including the rare, striped *Dendrobium striatum*, which is growing

and hybrids, including the rare and pretty *Epi-Cattleya* Mrs. James O'Brien (*C. Bowringiana* × *E. O'Brieniana*) raised by Messrs. Veitch & Sons, and flowered in 1899, and which had attractive heads of light purple flowers.

The Burford seedling *Calanthes* were just beginning to make the winter display. The *Cypripediums* had some fine specimens in bloom, and it is noteworthy that Mr. W. H. White has succeeded in establishing a duplicate of the rare *C. Stonei platytanum*, and that the parent plant is in good health. In the matter of flowers the forms of *C. insignis* make the best display, the



FIG. 24.—COLA ACUMINATA: FLOWERS YELLOW.

on a mossy raft mingled with the violet *D. Victoria Regina*, with which it was imported.

In the larger intermediate houses there were in bloom some pretty, but not large flowered, hybrids raised at Burford, and various *Lælio-Cattleyas*, including *L.-C. Wellsiana*, *L.-C. Statteriana*, *L.-C. eximia*, varieties of *Cattleya Chloris*, *C. vestalis*, some *Brasso-Cattleyas*, including a very deep rose-coloured *B.-C. Digbyano-Warneri*, and the white *B.-C. Queen Alexandra*. Among a bright little batch of *Sophranitis* crosses in flower was the *Sophranitis* *Lælio-Cattleya Veitchii*, *Sophranitis* *Lælia Gratixia*, *S.-L. Leda*, *Sophranitis* *Cattleya Chamberlainiana*, and behind them some winter-flowering *Epidendrums*

darker ones, such as *Harefield* *raii*, being arranged around the clear yellow and white forms.

To note but a few of the singular species in bloom we may enumerate *Polystachya Laurentii*, with upright growths bearing a profusion of spikes of small, white and fragrant flowers; *P. grandiflora*, the largest-flowered of the genus, never seen in better condition, with its large, inverted, wax-like, green flowers marked with purple; *Angraecum bilobum* with pendulous sprays of white flowers, and a large mass of *A. distichum* bearing numerous small, white blooms; and *Pterostylis goodyerioides* with erect spikes of small, yellowish flowers which were very curious, but not handsome. The

fine *Habenaria ugandæ* appeared very strongly grown and was just opening its flowers; *Poly-cynis muscifera* had a long raceme of singular fly-like blooms; *Cirrhopetalum Medusæ* (the specimen illustrated in *Gardeners' Chronicle*, January 9, 1897, p. 25), was again furnished with a dozen spikes, a smaller plant with purple-spotted, white flowers also bearing several heads of bloom; *C. Mysorensis*, *C. retusiusculum* and other *Cirrhopetalums*, including the remarkable *C. longissimum*, for which the Orchid Committee awarded a First-class Certificate on November 23 last. On that date the name had not been verified or the locality properly given. It is now known that it came from Siam.

A pretty batch of *Anætochili* was associated with some large plants of *Hæmaria Dawsonii*, above whose olive-green leaves striped with red, appeared neat spikes of pure white flowers. *Sobralia Lindenii*, *Epidendrum xanthium*, *Zygopetalum Ballii*, some very dark *Cypripedium Fair-rianum*, *C. purpuratum*, with four flowers; the very dwarf yellow *Oncidium Eurycline*; some interesting *Bulbophyllums*, the singular rose-coloured *Phaius mishmensis*; *Epidendrum erubescens*, flowering for the third time and still vigorous; *E. floribundum*, with a head of pure white flowers spotted with purple; the singular little *E. punctiferum*, *Mormolyce lineolata*, *Bolleo-Chondrorhyncha Froebeliana*, a curious but not very pretty hybrid; and *Pescatorea Klaborchorum* were all in flower. In the *Masdevallia* house were curious species of *Pleurothallis* and *Octomeria*, a few being in bloom.

In the ornamental plant stove was a good display of *Dendrobium Phalenopsis*s, with *D. aureum philippinense*, *D. Lawrencei*, a pretty hybrid between *D. formosum* and *D. Lowii*. Overhead were some very large baskets of *Begonia Gloire de Lorraine* in full flower.

In the greenhouse the *Lapagerias* on the roof were finely in flower, and among the plants in bloom on the stages were well-flowered plants of the *S. African Cyrtanthus sanguineus flammeus*, with pretty carmine-rose flowers.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PEAR AND PLUM TREES FRUIT REGISTER

—Hardy fruit-growers are indebted to the Rev. C. C. Ellison for his painstaking and valuable observations of his Pear and Plum trees on a south wall for a space of 10 years—1900 to 1909 inclusive. On the face of it this register does not hold out a rosy prospect to anyone contemplating the growing of Plums and Pears for profit on a south wall. However, one must not lose sight of the fact that the trees were young when planted, and therefore could not be expected to bear heavy crops for the first four or five years after planting. That they did not do so is indicated by the register; both Plums and Pears bore no fruit worth speaking of until the fifth year. It is, I think, fair to presume that if a similar register were kept for the next 10 years, the results would be more favourable. The most extraordinary thing in this register appears to me to be the vagaries of the same varieties growing side by side (under exactly the same conditions) as regards their bearing. Take the Plums. Two trees of *Monarch* are growing side by side; each tree is as robust and healthy-looking as the other, yet one tree in the 10 years gave 635 fruits, whereas the other only yielded 355. One *Golden Drop Plum* gave 688, and the other 363 fruits. There was only one tree of *Kirke's Plum* on the wall. This gave 1,138 fruits. Possibly, had there been another the divergence would have been as great as in the other cases. This strange divergence is more pronounced still in the case of the *Pitmaston Duchess Pear*. I have seen these trees on many occasions, and to look at them one tree is as much like the other as it is possible for two trees to be. Yet one tree gave 225 fruits in the course of 10 years, and the other 13 only! The question which naturally rises to one's mind is—why is this? It is no use looking to the conditions of culture for an answer; each tree has been treated exactly alike in every way. Is it possible that this precise and carefully-kept table of statistics of the bearing capacity of the several trees under ques-

tion points to the fact that the trees bearing the better crops have been propagated from trees which have consistently borne fairly good crops, and that those which have borne such poor crops have been propagated from trees of a poor cropping nature? Should this surmise prove to have any foundation in fact, Mr. Ellison's register will have served a valuable purpose in directing attention to the subject. O. T.

THE EFFECT OF GRASS ON TREES.—In the fields, woods and plantations here, such trees as Austrian Pine, Scots Fir, Spruce, Larch, and especially Corsican Pine, grow fast and well where the surface is overrun with grass. The Corsican Pine grows faster here than any other species, therefore I was surprised to read that Mr. Elwes experienced difficulty with this particular Pine (see p. 13). *Thuja Lobbi* grows rapidly here in grass-covered land in any kind of soil, but the stiffer for preference. With regard to the growth of Apple, Pear, Plum, or Cherry trees, on grass, I believe, under any circumstances, it is unwise to allow the grass to grow for a few years before the tree roots have penetrated deeply into the soil, so that the trees are not wholly dependent upon the surface roots. Some few years ago I tested the matter with several hundred trees some six years planted, but the leaves changed during the summer to a pale green and there was a distinct loss of vigour in growth. After two years of this experiment I had the surface cleared and dug over, and thus it remains. The following season there was a distinct improvement in the appearance of the trees. The objection to grass is that stimulative food, especially farmyard manure, cannot be given to the trees with any certainty of success. It is during the earlier stages of growth that fruit trees often require assistance in quickening their growth; in some soils this is particularly the case. The state of the subsoil, too, has some influence on the trees. When the roots can ramble at will, as they do in deeply-trenched soil which is not water-logged, they do not feel the grass effects nearly so much. Such trees when they become 15 years old will succeed as well under grass as otherwise, because they are thoroughly established in satisfactory conditions. E. Molyneux, Swanton, Hunts.

ANTS IN GREENHOUSES.—I notice in the "Answers to Correspondents" columns that several readers are troubled with ants. We were formerly overrun with this troublesome insect in the gardens in which I am engaged. Once, while fumigating in one of the plant houses, some of the nicotine compound was spilt on the floor, and next morning the spot was brown with the dead bodies of ants. Since then we have purposely applied it to the floors for killing ants with excellent results. The paths are made of concrete, and the compound is simply sprinkled in places frequented by the ants. Foreman.

SOLANUM WENDLANDII (see p. 11).—This plant requires no more heat than the Tomato. About 20 years ago I planted a specimen in a stove, but the growth was weak and very meagre, and almost constant attention was required to destroy aphides and other insect pests. The plant scarcely ever flowered; after seven or eight years it was transferred to a cold house with the intention of throwing it away. This was in the month of May. To everyone's surprise it sent out growths from 8 to 10 feet in length, and has since flourished and bloomed with success. The plant does best planted out, or in large pots in a temperate house. Frequent slight syringings are beneficial, and red spider must be guarded against. When loosely trained to the roof the hanging growths are extremely beautiful. The flowering season is usually June and July, and after blooming the leaves usually fall. The growths should then be considerably shortened. Fresh growths will soon appear, and in September the plants bloom again. If a little extra warmth is furnished, the blooms will be produced till the end of October. After this the growths should be again shortened, and the roots gradually dried off, until in February new growth commences. In cool houses, which are frost-proof, the plant blooms in August. In this nursery plants are put out in the open against a wall at the end of May. They make rapid growth and flower freely during August and September.

Small plants will bloom in 5-inch pots, but the growth should be cut back to within a few inches of the pot and a stimulant applied frequently. W. J. Godfrey, *The Nurseries, Exmouth*.

FRUIT AT THE RIDGMONT EXPERIMENTAL FRUIT FARM.—On p. 432, vol. xlv., a correspondent gave an account of the collection of Apples at the Duke of Bedford's experimental fruit farm. Amongst others he speaks highly of a variety called *Allansbank*. I take it this is the same variety as *Allanbank Seedling*. I procured this Apple very many years ago from Scotland, when I lived at *Pomona Farm*, Hereford, and grew it in my trial plantation, where I tested many hundreds of varieties, and I believe Mr. Pickering had a tree or grafts from me. I soon proved it to be the old variety *Gloria Mundi* or *Bell Dubois* of the French, and Mr. Pickering's description of its being an upright grower also points to its being the same variety. My experience of *Gloria Mundi* is that it is perfectly useless in Herefordshire; it is certainly an upright grower, but makes a few long, upright branches (with very few side branches) which soon become eaten up with canker, and, although it yields a few fine fruits, the bulk are so irregular and ill-formed as to be of little use. I know no Apple which varies so much in shape and size, even on the same tree; it is also by no means a good cropper. Its only use here is to grow a few fine fruits for exhibition. I write this warning, as I thought probably, after reading your correspondent's description, others might like to try the variety. John Watkins, Hereford.

Obituary.

SIR CHARLES STRICKLAND.—We regret to record the death of Sir Charles William Strickland, Bart., of Hildenley, and other estates in Yorkshire, which took place on the last day of 1909 at the age of ninety years. Sir Charles Strickland took great interest in afforestation, and was an authority on the best trees and shrubs for plantations and coverts, as well as for timber. He contributed some useful articles on the subject to the *Gardeners' Chronicle*, being for many years past a valued correspondent. From boyhood, one of his greatest pleasures was gardening, and he accumulated a large number of rare and interesting plants. His chief hobbies were bulbous plants and Orchids, but he had a fine collection of *Crimums*, and was an authority on them. *Nerines* also were favourites, and in 1894 *Nerine Stricklandii* was published in our columns, while in 1882 we recorded Mr. J. G. Baker's note on *Stenomesson Stricklandii* (which Sir Charles Strickland obtained in 1877), and which Mr. Baker afterwards made a new genus, *Stricklandia encrasioides*. Amongst Orchids he succeeded in keeping in health some plants which others failed to grow well, notably *Cattleya citrina*, which grew into fine masses and flowered profusely every year. His specimens were illustrated in these pages. *Cypripedium niveum*, *C. concolor*, and *C. bellatulum*, though belonging to a difficult section, grew well at Hildenley, and some 10 years ago Sir Charles Strickland showed a group of hybrid *Cypripediums* of this class at a meeting of the Royal Horticultural Society. *Cirrhopetalums* and *Bulbophyllums* were cultivated successfully, and Sir Charles was one of the first to show a fine specimen of *Cirrhopetalum ornatissimum*. This plant was bought by him at auction for 14 guineas some years previously, the price being considered remarkable at the time for a "botanical" Orchid. *Bulbophyllum Berenice*, *Dendrobium Stricklandii*, and other rare species first flowered at Hildenley. Sir Charles Strickland was a familiar figure at horticultural gatherings, and always looked in at the Royal Horticultural Society's meetings when in town. In his dress and manner he was a typical country gentleman of the olden time. He was ever ready to talk of plants and gardening matters. A man of fine physique, keen intelligence, and kind disposition, he took a prominent part in all the sports incidental to the life of a country gentleman. He celebrated his ninetieth birthday a few months ago by joining a meet of Lord Middleton's hounds at Malton.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 1, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was very unsettled in all parts of the Kingdom, but rain fell in the west and north-west more frequently and in larger quantities than in the south and south-east. An aurora was observed at Aberdeen on Friday night, and lightning at Geldeston and Dungeness.

The temperature was above the average, the excess ranging from about 2° in Scotland N. and the English Channel, to 5° in Ireland N., and to between 5° and 6° in England E. the Midland Counties and England, N.W. The highest of the maxima occurred on rather irregular dates, but at most stations on Monday or Tuesday. They ranged from 57° in Ireland N. and the Midland Counties, and 56° in several other parts of the Kingdom, to 53° in Scotland N. England E. and the English Channel. The lowest of the minima were recorded on different dates in the various districts, and ranged from 25° in Scotland N. and E. the Midland Counties and England S.E., to 31° in Ireland S. and to 34° in the English Channel. The lowest grass readings reported were 12° at Greenwich, 17° at Cambridge, 19° at Hereford, and 21° at Balmoral.

The mean temperature of the sea.—At the majority of the stations the water was warmer than during the corresponding week of last year, the excess amounting to as much as 7° at Aberdeen. In some places, however, it was colder, the difference being nearly 5° at Plymouth. The means for the week ranged from 47.9° at Newquay, and 47.4° at Salcombe and Seafeld, to 42° and less on most parts of our north and east coasts, and to very little above 40° at Cromarty and Burnmouth.

The rainfall exceeded the average in Scotland and the north-east and north-west of England, but was less elsewhere, the fall being slightest in England S.E. and E. At some stations in the west of Scotland and Perthshire and also at Aspatria a fall of more than an inch occurred at some time during the week, the heaviest amounts recorded being 1.22 inch at Fort William and 1.25 inch at Crieff.

The bright sunshine somewhat exceeded the normal over the greater part of England and in Scotland E., but elsewhere it was deficient. The percentage of the possible duration ranged from 21 in the Midland Counties and England E. to 7 in Ireland N. and to 4 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending January 5.

A very warm week.—With the exception of the first day and night all the days and nights have been warm, and some of them very warm for the time of year. On the warmest day the temperature in the thermometer screen rose to 54°, which is a very high reading for January, and on the warmest night the exposed thermometer did not fall below 41°. The ground has consequently become warmer, and is at the present time 2° warmer at 2 feet deep, and 4° warmer at 1 foot deep, than is seasonable. Rain fell on three days, but the amounts were insignificant. The percolation through both of the soil gauges has been gradually declining, and is now very slight. The sun shone on an average for 1 hour 32 minutes a day, which is 10 minutes a day longer than is usual at this period in January; and on one day the sun was shining brightly for nearly 4½ hours. Light airs and calms have alone prevailed during the week. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by 5 per cent.

DECEMBER.

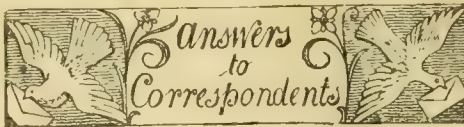
Rather warm, continuously wet, and very sunny; with a remarkably humid atmosphere.—Taken as a whole this was rather a mild December. The first few days, and also the last 10 days were as a rule very warm, but during the intervening 18 days the weather remained almost continually cold. On the warmest day the highest reading in the thermometer screen was 52°, which is remarkably low for the extreme maximum temperature in December. On the coldest night the exposed thermometer registered 17° of frost, which is a rather high extreme minimum for the month. Rain, hail, or snow fell on as many as 24 days, leaving only seven days without some falling. The total fall, 8 inches, was only about half-an-inch in excess of the December average. At no time was there sufficient snow to completely cover the ground. The sun shone on an average for 1 hour, 33 minutes a day, or for 23 minutes a day longer than the usual duration for the month. In the last 24 years there have been only four Decembers with as good a record of sunshine. The wind was, as a rule, rather high, and in the windiest hour the mean velocity amounted to 26 miles—direction W.S.W. The average amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 4 per cent., making this the most humid December since 1850, or for 19 years.

THE YEAR.

Cold, wet and sunny.—This was a cold year, the cold being most marked during the five months ending September, when vegetation is most active. In fact, during those months the only period when there was any warm weather lasting more than a few days at a time was during the first half of August. The most unseasonably cold month was June, and the most unseasonably warm one October. On the hottest day, August 12, the temperature in the thermometer screen rose to 86°, and on the coldest night, February 23, the exposed thermometer indicated 20° of frost. The total rainfall exceeded the average for the previous 53 years by 1½ inches. Taking the year as a whole the sun shone on an average for 18 minutes a day longer than is usual. May was by far the sunniest month.

OUR UNDERGROUND WATER SUPPLY.

The total rainfall for the last three months has exceeded the average for the same period in the previous 53 years by about half an inch—which is equivalent to an excess of 8,370 gallons on each acre. Last year at the same time there was a deficiency of 74,200 gallons per acre. E. M., *Berkhamsted*, January 5, 1910.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

ALMONDS: W. C. The kernels are not bitter; they are edible.

ANNUALS: *Inquirer*. You do not say what exposure the bed has, or if it is in full sunshine, or whether it has a background. We will answer you as best we can. A broad edging of *Tagetes pumila* will continue to flower for a long time. *Phlox Drummondii* or *Verbenas* treated as annuals are showy and effective, and for the back or centre of the bed Ten-week Stocks and mixed *Salpiglossis* make a pretty combination.

BEGONIA GLOIRE DE LORRAINE: R. C. Cut the plants back to within 4 or 5 inches of the base, and winter them in an atmospheric temperature of from 55° to 60°. After pruning, the plants will require less water. Where a difficulty in securing cuttings is experienced, plants which have not been too roughly used in house decoration should be selected for stock and pruned at once. This will prevent their becoming unduly exhausted by long-continued flowering. Later, when new growth appears at the base of the plants, weak liquid manure water may be given occasionally. See also the article in last issue, p. 12.

CALANTHE VEITCHII: A. M. S. C. Your spikes of *Calanthe Veitchii* with 60 flowers, and the two on one pseudo-bulb bearing 50 and 38 flowers respectively, are exceptionally fine. We should be pleased if any of our readers can record a greater number. J. L. W. Your batch of *Calanthe Veitchii* bearing two inflorescences from a single pseudo-bulb and bearing from 35 to 45 flowers each, are better than the average. As you will see by the answer to A. M. S. C., more flowers are occasionally developed on a single spike.

CYMBIDIUMS NOT FLOWERING: C. E. H., *Breslau*. Probably you keep your *Cymbidiums* in a too warm atmosphere, especially in winter. Use a mixture consisting of from one-half to two-thirds of fibrous loam, according to the quality of the loam, using the smaller proportion if it is heavy and not of good, fibrous quality. The remaining portion should be made up of Sphagnum-moss, peat, and leaves in equal quantities. When the plants are growing freely, water them copiously and occasionally give them a little weak liquid manure. Do not disturb the plants again for several years, as they bloom best when pot-bound. An atmospheric temperature of from 50° to 60° Fahr. at this season is sufficient. Excessive warmth at night-time weakens the plants and prevents them flowering.

CYPRIPEDIUMS: B. L. Hardy *Cypripediums* may be divided into two groups for the purpose of cultivation. One group, of which the British species *C. Calceolus* is representative, requires loamy soil of a calcareous nature. The other group, of which *C. Reginae* (spectabile) is the best-known member, prefers soil of a peaty nature. These two species are the easiest to establish, but several others may be grown with success in suitable situations. They all prefer a cool, sheltered and shady place, and while some like *C. Reginae* require plenty of moisture, they must all have perfect drainage. The following is a list of those that may be established, provided a proper situation is found for them in suitable soil. Species requiring loamy soil: *C. Calceolus*, *C. macranthum*, *C. Thunbergii*, *C. tibeticum*, and *C. ventricosum*. Species preferring a peaty soil: *C. acaule* (humile), *C. arietinum*, *C. californicum*, *C. candidum*, *C. japonicum*, *C. montanum*, *C. parviflorum*, *C. pubescens*, and *C. Reginae*. A full account of the different species and their culture is given in the issue of *Gardeners' Chronicle* for September 25 and October 2, 1909.

DIGGING AND TRENCHING LAND: G. B. The cost of digging land varies according to the district

and the nature of the soil. The following prices may be taken as the approximate cost per rod (1) Digging: Ordinary garden soil, 1½d. to 2d.; heavy land, 3d. (2) Trenching: Light soil worked two spits deep, 10d.; heavy land, 1s. (3) Bastard trenching: Light soil, 6d.; heavy ground, 8d.

EUONYMUS: R. F. F. A very good instance of fasciation, a condition this shrub frequently exhibits.

GARDENING TUITION FOR WOMEN: Miss H. The following institutions, in addition to the one you mention, admit female pupils for training in gardening subjects:—University College, Reading; Royal Botanic Society, Regent's Park, London; Edinburgh School of Gardening for Women, Kaimess Road, Murrayfield; Women's London Gardening Association, 62, Lower Sloane Street, S.W.; Studley Horticultural College for Women, Studley Castle, Warwickshire; School for Lady Gardeners, Glynde, near Lewes; Women's International Agricultural Club, Manor House, Bredons Norton, near Tewkesbury, Worcester; and the Thatcham Fruit and Flower Farm School of Gardening, Henwick, near Newbury. There are, in addition, several nurseries and market gardens where women students are admitted.

GOOSEBERRY BUSHES: P. R. E. Spray them with one of the winter washes, of which caustic potash forms the principal ingredient. When the buds are developing their leaves in spring, spray the bushes with some arsenical insecticide, and again later if caterpillars are still detected.

GRAPE MRS. PEARSON: T. H. H. The Grapes have been under observation up to the present and no trace of a fungus has been observed. The injury is evidently due to some weakness of the particular plant, and is not due to cultural defect.

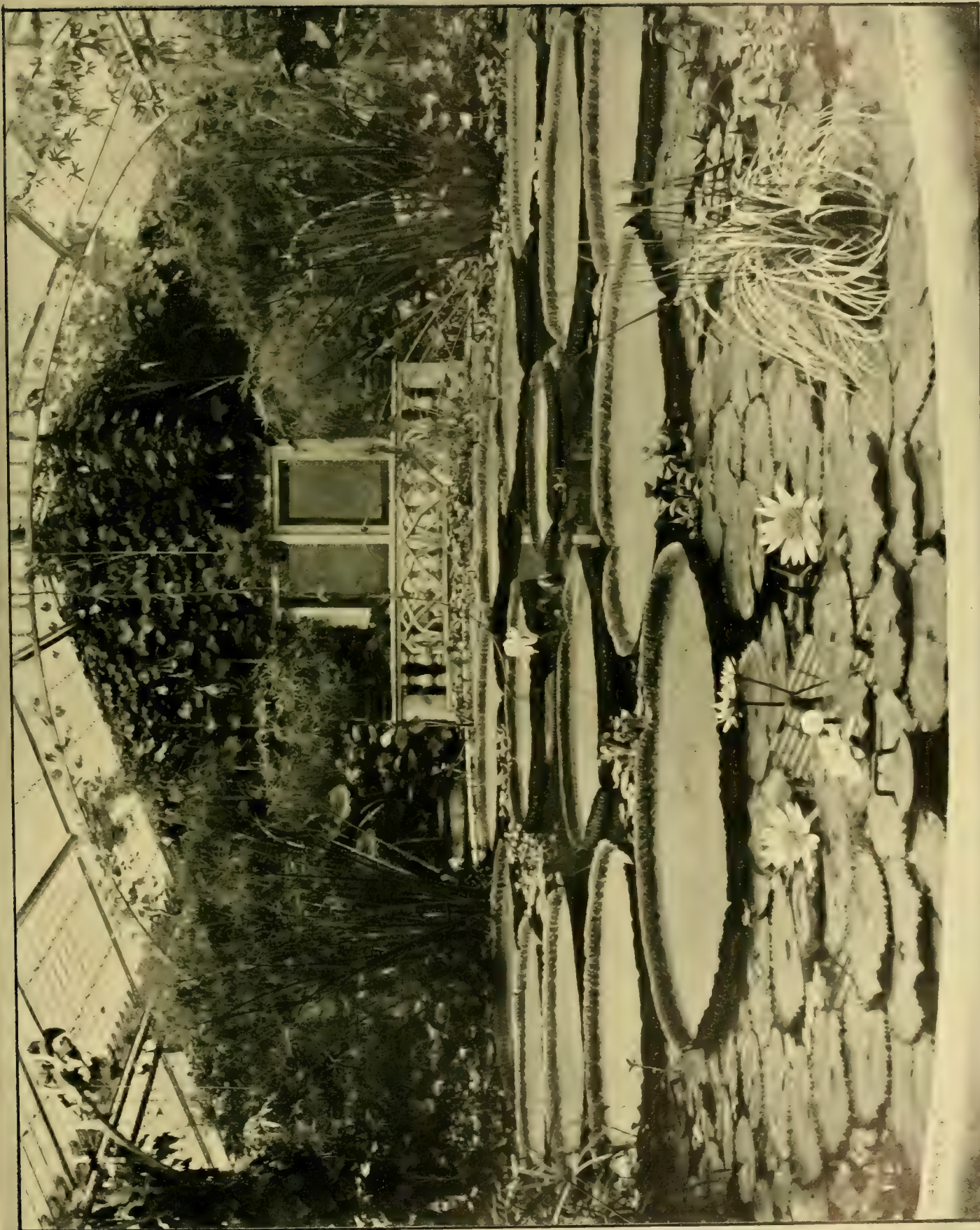
MEDLAR JELLY, &c.: C. L. L. Place the fruits in a stewpan and barely cover them with cold water. Cook slowly, as with other fruits for jellies, till the pulp is very soft and the juice entirely free. Drain off the juice and simmer the liquid till it is thick, and then add sugar. When the sugar is thoroughly dissolved, cook for about 15 minutes, after which the jelly should set properly. It is not unusual for Black Hamburg Grapes to remain in good condition until Christmas.

NAMES OF PLANTS: Henry Baker. *Calanthe Veitchii*.—L. H. *Bidens pilosa*.—F. McD. We cannot undertake to name varieties of *Chrysanthemums*. The shrub is the silver variety of *Euonymus radicans*.—R. O. 1, *Stelis tristylis*; 2, *Pleurothallis picta*; 3, *Bulbophyllum auricomum*; 4, *Oncidium sphacelatum*.—L. E. S. *Ornithogalum lacteum*. It may be grown with *Nerines*.

ROSE TREES: W. J. J. The question cannot be answered satisfactorily unless specimens are sent us with the aphids upon them. If this is done, the species can be identified.

THE "FLORIST AND POMOLOGIST": American Correspondent. The journal known as the *Florist and Pomologist* was established in 1840 under the title of the *Florists' Journal*. In 1848 a new series commenced under the title of *The Florist*. In 1849 the title was *The Florist and Garden Miscellany*. In 1851 it was again changed to the *Florist, Fruitist and Garden Miscellany*. It continued under this title until 1861, but in 1862 it became the *Florist and Pomologist*, and so continued until 1884. In 1862 the journal was conducted by Robert Hogg and John Spencer, assisted by Thomas Moore. Robert Hogg and Thomas Moore continued to edit it until 1868, when they were assisted by William Paul. In 1871 Robert Hogg withdrew, and the editorship was in the hands of Thomas Moore and Wm. Paul until 1875. From this latter date until 1884, the sole editorship was in the hands of Thomas Moore, who was also one of the editors of the *Gardeners' Chronicle*.

Communications Received. J. McH. A. R.—P. & Co. —M. & Co.—W. B. H.—John D.—H. V. S.—J. O.—Jno. W.—H. S. T.—Geo. F.—W. B. W.—S. F. W.—H. W. W.—Robert S., Ltd.—T. Hunter—J. B. L.—H. W.—Dr. K., Berlin—H. H. W. P.—H. J. F.—Clay—T. W. C.—H. H.—W. E.—F. F.—W. C.—W. M.—C. E. H., Breslau—F. W. P.



VIEW IN THE VICTORIA REGIA HOUSE AT THE PALM GARDEN, FRANKFORT-ON-MAIN.

THE Gardeners' Chronicle

No. 1,203.—SATURDAY, January 15, 1910.

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"THE FLOWER GARDEN DISPLAY'D."

THE authorship of this book has been ascribed by some to Sir John More, and by others to Robert Furber, a successful nurseryman at Kensington "over against Hyde Park Gate," as Miller directs in the *Catalogue of Curious Trees, &c.*, appended to the dictionary which he published in 1724. The evolution of the book is as follows:—Furber published twelve coloured plates of flowers, one plate of the flowers of each month of the year, in imperial folio in 1730, the sole letter-press consisting in lists of subscribers' names, and of the flowers depicted. Other sets were distributed, plain, either at the same time or later. Furber is said to have designed the plates in which the flowers are loosely arranged in ornamental vases. Ten are signed Shepperd and two of them T. B. In 1732, *The Flower Garden Display'd* was published, the above-mentioned plates being reproduced but reduced to quarto size, the artist in this instance being Jas. Smith. They are accompanied by brief notices of each flower illustrated, and, in addition, to the plates, there is a pretty engraved frontispiece of 24 flowers disposed so as to enclose the abbreviated title and the publishers' names.

Opposed to it, on the usual page, is the title in full, which is worth reproducing—

"The Flowers Garden Display'd in above 400 Representations of the most Beautiful Flowers, Regularly dispos'd in the respective Months of their Blossom, Curiously engrav'd on Copper-Plates, From the Designs of Mr. Furber and Others, and Coloured to the Life. With the Description and History of each Plant and the Method of their Culture whether in stoves, greenhouses, hot-beds, glass-cases, open borders, or against walls. Very useful not only for the curious in Gardening, but the prints likewise for Painters, Carvers, Japaners, &c., Also for Ladies as patterns for working, and painting in water colours or furniture for the Closet."

In 1734 the book was reprinted, and the title was further extended, thus:—

"The Second Edition. To which is added, A Flower Garden for Gentlemen and Ladies; being the Art of raising Flowers without any Trouble to blow in full Perfection in the Month of Winter, in a Bed Chamber, Closet or Dining Room, Also the Method of raising Salleting, Cucumbers, Melons, &c., at any Time in the Year. As it is now practised by Sir Thomas More, Bart."

Even a cursory examination shows that Sir Thomas More was not the author, and the fact that Furber is several times referred to in the third person, disposes of the claim made on his behalf. The book itself affords evidence of having been composed by someone with a knowledge of botany and of florists' flowers, but who was neither a florist nor a gardener, of one who had visited Continental gardens, and who had been in the habit of procuring plants from many countries; facts which reduce the possibilities of authorship to within narrow limits. There are, moreover, articles which give a fairly reliable indication of the identity of the author. Such are those on the Auricula and the Caper, which resemble in a remarkable manner those on like subjects in Bradley's *New Improvements in Gardening*. Apart from the intrinsic evidence, the authorship might be deduced from the fact that Bradley was employed by the same publishers, Montagu, Brindley and Corbett, to arrange Cowell's treatises for republication about the same date. More conclusive still is the fact that he provided the literary part of *The Fruit Garden Display'd* in the same year. This is a companion volume to *The Flower Garden Display'd*, and, like it, was published in reduced form from an illustrated imperial folio by Furber in 1730, and was entitled *Fruits for Every Month of the Year*. With these several considerations to guide us, I think there need not be the slightest doubt that Bradley, who still held his professorship at Cambridge, but whose position was of the most precarious nature, was the author of *The Flower Garden Display'd*. His death occurred at the end of 1732, and this book, therefore, was, in all probability, the last literary commission he filled.

While much of the literary matter in the volume under consideration is of the slightest value, some of it is of great historical value. This is particularly the case with the articles on florists' flowers, and in an especial manner with those on the Auricula and gold-laced Polyanthus. Thirteen varieties of Auricula are represented and described. Of these, two are double-flowered, two are Alpines, four are striped (a section which a little earlier was considered the choicest of all), five are edged flowers of the stage section, and, though some of these as depicted are very rough in outline, and the ground colour runs into the edge in a manner that would shock a present-day florist, still, I have frequently seen such varieties as Conqueror of Europe and Mrs. Champneys quite as badly defined as some of those illustrated in *The Flower Garden Display'd*. The edging in every instance is

white. The remaining variety is a true self, with a white eye and a "blue velvet," or ultramarine, ground or edge. Six are described as Painted Ladies. The interesting thing about the whole is that we have here the evolution of the flower with a circular edge, at a stage mid-way between that and the earlier striped. If we were to judge from the description alone, we should believe that none were edged, but the representations on the plates clearly demonstrate the fact that they were a stage beyond the stripe and flake. Two varieties only show the edge uninterrupted by the ragged body colour, and of these the better is *Semper Augustus* (deep carmine), and the other Honour and Glory, the edge of which is less clearly defined and deep reddish-purple.

The Polyanthus, which later became a cherished flower of the florist, was in a similar stage of evolution as the Auricula. Only five varieties are noted, mostly with striped flowers and white edges. One, "The Goldfinch Polyanthus, blossoms with full Truss flowers upon strong flower stems. The Blossoms have yellow Eyes and the other part Scarlet except the Edges, which are yellow." But it is added, "there are vast varieties." Flowers with thrum-eyed and "Pin-eyed" blooms are defined and distinguished with a passing remonstrance with the florists for neglecting the latter. Here, too, for the first time, so far as I recollect, we have the designation "Picotee," which in one instance has the penultimate accented, "Picquette" and "picote" being the usual forms. Besides being picoted on the body of the petals, the latter were "dotted on the edges with a Carmine colour of the 'Sweet-scented Pea';" it is recorded that "it brings its Blossoms of two colours, one a reddish Purple, and the middle of a fine Blue. It smells like an Orange-flower."

Several Hyacinths, including perhaps the white and blue Roman, are noted. Anemones are in goodly proportion, several Crocuses and Tulips, among which the familiar "Vantol" figures. Of Narcissus, the Polyanthus section seem to have been alone popular. *Kniphofia Uvaria* appears as *Iris Alvaria*, and we are informed it was called as well the Sword-blade Aloë, the last name appearing more than once with the "e" accented as here. Variegated plants were much esteemed in early horticulture, and here we have many variegated plants described, though they seem to have disappeared from our gardens in the intervening years. The "strip'd Candy Tuft," which he states "I brought from Holland," was the *Iberis sempervirens*, with the leaves edged with cream. There was a silver-edged and a yellow-blotch'd *Alaternus* (*Rhamnus Alaternus*),

"Strip'd leav'd Geranium. The leaves of this plant are edged with cream Colour, and makes one of the most beautiful Shrubs among the Greenhouse Plants, about three Foot high, This I first brought into England from the Paris Gardens—it is now grown very plenty in the Curious Gardens."

It was a form of *Pelargonium Zonale*. He also asserts that he "brought" the "Scarlet Geranium" (*P. inquinans*) from Holland. "Bella Donna Lilly. This is the Lilly of Damascus; and I was informed it was first sent over to the great Patron of Botany, Dr. Compton, Bishop of London." Aiton does not appear to have known this; he merely gives the date, 1712, without the name of its introducer. Of the "Scarlet Althaea" (*Hibiscus sinensis*), it is

stated that it is a "beautiful Shrub and is the Plant which is call'd the China Rose." It was "preserv'd in the Greenhouse in Winter." In the Virginian Columbine, we are able to recognise *Thalictrum aquilegifolium*, and the "October Flower" is probably *Aster Novi Belgii*; the same name is used for the same plant in another of Bradley's books, the only instances I know of its occurrence. *Aster grandiflorus* is also illustrated. It is called "Virginian Aster—first sent to us by Mr. Kateshy, a very curious Gentleman." In-

may be mentioned *Phlox carolina*, *Lathyrus latifolius*, *Lilium Martagon album*, *Nuphar lutea*, Cobb Pink, and Brompton Stock, the flowers of which are single. It is noteworthy that several of the flowers are duplicated and some appear in three plates, which it may be said are really pictures, and exhibit the influence of Van Huysum. Sets of the large coloured plates are scarce, and, consequently, very expensive.

I may point out the difficulty of determining any of the plants illustrated, on ac-

NEW OR NOTEWORTHY PLANTS.

PELLÆA CAMBODIANA AND ITS BULBILS.

In a collection of Ferns from Upper Burma, received from Mr. J. H. Lace, the forest officer, there are very good specimens of this Fern, which was described by Mr. Baker in the *Ann. Bot.*, 1891, from rather poor fragments in the Kew Herbarium collected in Cambodia; as it is new to the Indian region, and most interesting on account of its curious adventitious growths, I am glad to be able to give an illustration of it (see fig. 25), together with an account of the outgrowths by Mr. Boodle, of the Jodrell Laboratory at Kew.

The following is Mr. Boodle's account of the outgrowths:—

A few small, adventitious outgrowths, covered with hair-like scales occur on the lower side of the fertile leaf. These bodies are inserted near the margins of some of the pinnae and segments and interrupt the sori. They are 2 to 2.5 mm. in length, resemble Rice grains in shape, contain a large amount of oil, and have a central vascular strand. The point of attachment is near one end, and the growing point at the other end. They may be described as small tubers, and, as they can be easily detached, it may be assumed that they form a means of vegetative propagation. In many respects they are similar to the adventitious structures, which are found on the leaf of a specimen of *Phegopteris sparsiflora* Hook., by Sadebeck (*Berdeutsch, Bot. Ges.*, xiii. 21) though absent in other specimens of this species.

PELLÆA CAMBODIANA (BAKER).—Rhizome small, tufted with numerous wiry roots, stipe 2 to 4 inches long in the sterile, 4 to 6 inches in fertile fronds; fronds, deltoid-lanceolate, the leafy portion 2 to 4 inches long by 1 to 1½ inch broad, somewhat contracted in the fertile, bipinnatifid; pinnae a few opposite or sub-opposite, the lower ones shortly stalked, the upper ones adnate, broad-ovate to lanceolate, the lower pair much, the others slightly, lobed or pinnatifid sub-membranous, dull green; rachis and surfaces naked; the veins free, pinnate in the lobes, the branches often forked; involucre continuous. Curious scaly bulbils occur in all the fertile fronds of the three specimens sent; they are sometimes parallel with, but more commonly at right angles to, the fructification which they interrupt.

Hab Paunglyzin reserve, Upper Chindwin district, alt. 600', Upper Burma, lat. 24. J. H. Lace, No. 4,213.

Also in Cambodia. R. H. Beddome.

CALLISTA v. DENDROBIUM.

I HAVE studied both the type specimen of Loureiro's *Callista amabilis* and the plant which flowered with Dr. Goldschmidt at Essen, and which Prof. Kranzlin identified with the plant of Loureiro. The Loureiro plant has, so far as I can see, two lateral, connated sepals, and one almost free, median sepal. Dr. Goldschmidt's plant has all three sepals connated. Whether the two lateral sepals of Loureiro's plant form a mentum with the foot of the column or not, I cannot say with certainty, as the flower which I have seen is not quite intact; but I am inclined to think they form a mentum. Dr. Goldschmidt's plant has no mentum. The lateral petals of Loureiro's plant are broader than the lateral sepals; in Dr. Goldschmidt's plant they are smaller. The lip of Loureiro's plant has a long nail, the blade being, as it seems, three-lobed. The base of the lateral lobes is united to a short crest just where the nail ends and the blade begins; the blade is funnel-shaped at its base; the surface of the blade is irregularly hairy at the lower half. There is no dividing of the blade of the lip into an hypochil and an epichil—the lower part goes over slowly into the superior part. It is remarkable that, from the middle nerve of the blade, run off, near the base, two vascular



[From a sketch by Mr. Fitch.

FIG. 25.—PELLÆA CAMBODIANA WITH BULBILS.

stances occur in which Bradley is at fault in his attempts at identification, as where he remarks that "Pona's Blue Throatwort" comes from Carolina, and so I suppose has its name from the Indians," when he ought to have known it was *Phyteuma comosum*, first described and figured in a supplement to Clusius's *History of Rare Plants*, relating to plants discovered on Mount Baldus.

In the engraved frontispiece several distinct flowers are represented, of which

count of English names—some of which are peculiar to this work—being almost solely employed. Had the botanical names of the period been utilised they would have been different from those now in use, but the identification of the plants would have been comparatively easy compared with the identification of names such as "Nettle-leaved Jessamin, Creeping Borage, Embroider Crain's Bill, Double Mouse-ear, Sage and Rosemary tree," and others. R. P. Brotherston.

bundles, one to the right, the other to the left at almost right angles. The lip of Dr. Goldschmidt's plant has no nail; it is differentiated into a thick hypochil and a thin epichil; the former is half-cup-shaped, the latter triangular; the hypochil has only parallel nerves, it is beset on its inner surface by hairs, which are grouped together in bundles arranged in longitudinal lines. At the point where the hypochil and epichil come together, there is a transverse, toothed, fleshy crest, the teeth of which are fimbriated; from this crest runs, in a right angle, along the middle of the epichil, a fine, thin, irregularly-toothed crest. The column of Loureiro's plant has one reverted tooth at its apex at each side, and at the inner base of each tooth there is a little, triangular tooth. The column of Dr. Goldschmidt's plant has only one straight, triangular tooth at each side of the apex. In both plants the column forms a foot twice as long as the column. It seems to me that there is a little hole at the junction of column and foot in Loureiro's plant. Such a hole does not occur in Dr. Goldschmidt's plant. The columns of both plants are without any hair. These are the details of the flowers of the two plants as far as I could compare them. I have not seen the anther of Loureiro's plant, which is cucullate and two loculate in Dr. Goldschmidt's plant. The anterior part of the anther of this plant is protruded into a truncate lobe, which is finely toothed. The four cereous pollinia are elongate obovate, flattened at one face; there are two in each cell of the anther, and they lie closely together; the outer are a trifle shorter than the inner ones.

A comparison of these two descriptions shows clearly that the two plants are totally different in the construction of the flower. As far as I can see from photographs, both of Loureiro's and Dr. Goldschmidt's plant, the plants differ also in their vegetation features. I agree with Mr. Jas. O'Brien that Loureiro's plant is a true *Dendrobium*. But what is Dr. Goldschmidt's plant? At first sight, there is much resemblance with *Dendrobium aduncum* Hook., not Lindl., both in shape and colour of the flowers. But the construction of the lip is different. Mr. O'Brien has written to me, saying that he has seen an imperfectly-developed mentum in a weak plant, and as the plant of Dr. Goldschmidt is a weak one, it is possible that the flowers will bear a mentum when the plant is stronger. But as there is no trace of a mentum, I doubt whether there ever will be one. Mr. O'Brien had the kindness to direct my attention to *Dendrobium hercoglossum* Rch. f. Unfortunately, there is no specimen of this species in the Berlin herbarium. Should this species be the same as *Dendrobium aduncum* Hook. (*Bot. Mag.* 6784), it is certainly not this species. I have to thank Dr. Rendle for lending me a flower of Loureiro's plant, and Mr. O'Brien for studying once more the type specimen of Loureiro's plant and giving me the result of his investigations. *Udo Dammer, Berlin-Dahlem.*

KNIPHOFIA UVARIA ERECTA.

At one of the meetings of the Royal Horticultural Society last autumn, Messrs. Wallace & Co. showed inflorescences of a *Kniphofia*, in which the individual flowers, instead of being pendulous, as is normally the case, were erect. This is not the first occasion on which erect varieties of *Kniphofia* have been seen, for Mr. Gumbleton informs us that a few years ago he obtained an erect-flowered variety from a French nurseryman. Being of a tender character, however, the plant did not survive the first winter at Belgrove. The present plant is described as a variety of *K. Uvaria*. It would be interesting to observe what effect the altered disposition of the flowers has on pollination. It is obvious that whilst the pollen in the dependent flowers is in a measure shielded from rain, that in the flowers now figured is unprotected from it.

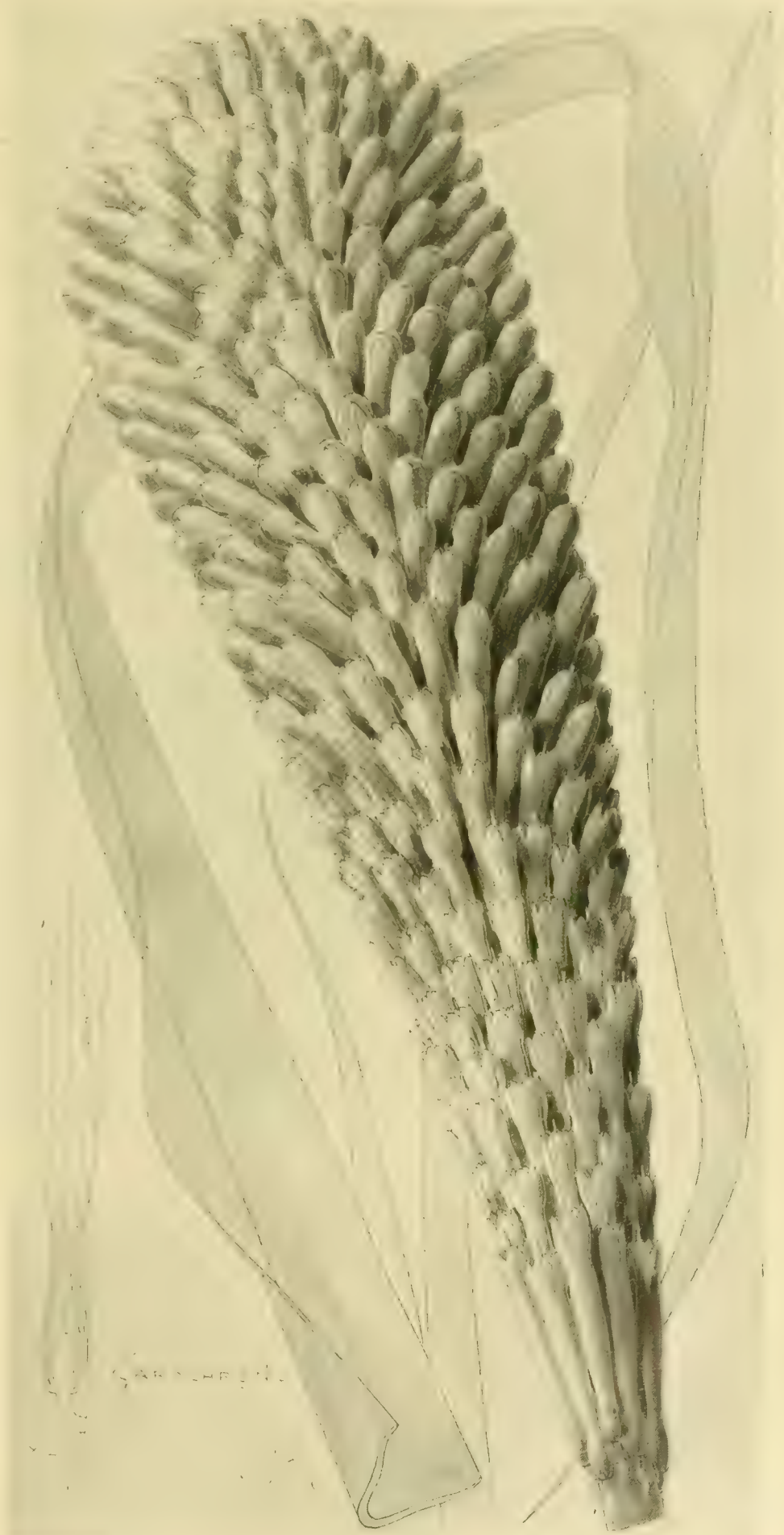


FIG. 26.—AN ERECT-FLOWERED KNIPHOFIA.

NOTICES OF BOOKS.

* FRUIT RANCHING IN BRITISH COLUMBIA.

MR. BEALBY relates his experiences as a fruit rancher in such a manner as to keep the interest of the reader to the very end. He starts as a "tenderfoot," and relates his early mistakes and experiences up to the time when, in a few years, he had mastered the art of fruit ranching and was able to win prizes for fruit at shows, not only in his own district but also in London.

The book is especially valuable to those who contemplate going to British Columbia to grow fruit. Not only may they read of some of the difficulties of the beginner, but also of the high rate of expansion of the fruit industry in that country.

British Columbia is a wonderland for the growing of hardy fruits. The soil and climate are not equalled for this purpose in any part of the world, and already the samples of fruits raised there equal, and in some instances surpass, those raised in the Hood River Valley of Oregon. The figures, given by Mr. Bealby, illustrating the yields of orchards, are dazzling to a grower in Britain. The crops are heavy and certain, and, owing to the excellent system of combination among the producers, the returns are good. They have undeveloped markets all around them, and as the immense tract of country between the mountains and Winnipeg becomes more populous, large towns will grow up and cause a greater demand for fruits. The plains, owing to the severe winters and the hot summers, are never likely to become adapted to extensive fruit growing, and British Columbia will be able to supply the deficiency. Trial consignments of fruit have already been sent to Australia.

The reader of this book is impressed by the admirable manner in which the whole fruit industry of this immense district is fostered and assisted by the Department of Agriculture, as well as by the British Columbia Fruit Growers' Association and the various local associations.

Judging by the illustrations, the trees are never planted thickly nor allowed to crowd one another. Each tree has plenty of room to profit by the sun and air, and consequently it crops to perfection.

I think Mr. Bealby rather under-estimates the cost of clearing and general expenses, but these are doubtless governed largely by the location of the ranch. He speaks very favourably of the dry lands in the Okanagan district, which are no doubt very good, but it would appear that where immunity from drought can be insured by irrigation, as in the Kootenay Lake district, the rancher's prospects are more secure.

To those who take pleasure in fruit growing, and are in search of healthy and remunerative occupation, and have a small amount of capital, British Columbia offers alluring attractions which are hard to find in any other locality. There is, it is true, plenty of hard work for the emigrant, but it is an investment yielding compound interest, for not only does the rancher make money out of his crops, but his land is accruing in value each year as it is improved.

In London, recently, remarkable prices were realised for Cox's Orange Pippin Apples from Nova Scotia. Ten half-barrels were sold wholesale for £20, roughly 26s. 8d. per bushel. British Columbian Apples should be equally good in quality. *T. A. H. Rivers.*

FRUIT REGISTER.

APPLE GOLDEN NOBLE.

I QUITE agree with Mr. T. W. Turner, vol. xlvii., p. 421, as to the merits of this Apple. It is an excellent variety. Its useful size, beautiful colour and shape, and its good keeping qualities strongly recommend it. It is my favourite variety. *C. L. Branson, The Gardens, Blythwood, Burnham.*

* *Fruit Ranching in British Columbia*, by J. T. Bealby. Price 3s. 6d.

THE PALM GARDEN AT FRANKFORT.

(Concluded from page 18.)

HOUSE VI. contains succulents, which, thanks to good gardening, a pure, dry atmosphere, and more sunshine than we are used to in this country, constitute a very fine selection. House VII. is devoted almost entirely to Camellias in tubs, which are removed in summer to make room for a display of greenhouse plants. On entering House VIII. one is at once struck by the two splendid *Lapagerias*, one red and the other white-flowered, which cover a large portion of the roof, and are a great sight from August to November. Another fine plant is a *Testudinaria*; otherwise the general contents of the house were much the same as in House VII. House IX. is divided into two parts, the first devoted to economic

fine collection of greenhouse plants is maintained the whole year round. Huge batches of *Cyclamen* were magnificent, equal in every respect to any collections seen in this country. In another house there were hundreds of pots of a good variety of *Myosotis*. These were arranged rather thickly together on side stages, and a few white *Cyclamens* were placed on pots so that they appeared above the blue *Forget-me-nots*. Pretty green drapery hung from the fronts of the stages, consisting of *Saxifragas* and other plants, and *Nepeta Glechoma foliis variegatis* was suspended from the roof. The effects of the bright sunshine on the *Forget-me-nots*, together with the delicate tones of the trailing plants, and those suspended from the roof, were such as not to be soon forgotten. The connecting corridor is not built for cultural purposes, but contains a large number of decorative



FIG. 27.—PORTION OF THE ROSARY IN THE PALM GARDEN, FRANKFORT-ON-THE-MAINE.

plants, and the second to *Nepenthes* and *Bromeliads*, all well grown and in great variety. House X. consists of three divisions. In the first a pleasing effect is obtained by means of a stone grotto furnished with Ferns and Orchids, the latter being removed as soon as they have finished flowering. The second division is devoted to the cooler Orchids, and the last to *Sarracenias* and insectivorous plants. The main Orchid collection is contained in House XI., half of which is devoted to tropical, and the other half to the temperate Orchids. We were informed that the collection contains 100 genera and 860 species. Most of the Orchids are in excellent condition, and at the time of our visit there was a batch of plants of *Lycaste Skinneri alba* in wonderful flower; the plants were only in 6-inch pots, but most of them bore at least six open flowers. In Houses XII. and XIII. a

Palms in pots. All the houses are lighted by electricity, for in Frankfort the gardens are open until a late hour, and visitors are not content with viewing the plants by day, but must also see them by lamplight.

The heating arrangements are carried out on the low-pressure steam and hot-water combination system, similar to that adopted in the Dahlem Botanic Garden, but on a smaller and less costly scale. A new feature consists in an electrical signalling apparatus which rings a bell in the boiler-house as soon as the temperature exceeds a certain limit. The greenhouses are all built of iron on a brick base, but the iron parts are covered with wood, so that the danger of sudden changes of temperature is not so great as if bare steel were employed. The area covered by this range amounts to about one English acre.

THE OUTSIDE DEPARTMENT.

This is of more interest to landscape gardeners and park superintendents than to botanists, the object being not so much a collection of hardy trees and shrubs as a picturesque and pleasant spot where visitors may pass a summer's afternoon. Many of the views which are to be obtained are charming, the disposal of the trees and the careful blocking out of buildings leading the casual observer to believe that the area of the garden may be hundreds, instead of as it actually is, roughly 50 acres in extent. In summer the vegetation is almost tropical in appearance, for the visitor constantly meets tastefully-arranged groups of Bananas, tree Ferns, Yuccas, Cactaceous and similar plants, which, needless to say, have to be removed to the houses on the approach of frost. The two lakes which occupy areas of about two acres and half an acre respectively were both constructed in the early days of the garden, the excavated soil being used to render the ground more hilly. On the larger lake are two islands, and at one end is a high precipice of rock and earth naturally planted and surmounted by an Alpine house half hidden by trees. The margins of both lakes are tastefully planted with ornamental trees and shrubs, a particularly striking effect being obtained by means of groups of white barked Birches and coloured Willows. Both lakes are spanned in their narrowest parts by bridges, one of stone, and the other of steel, which, however, do not detract from the general effect.

Much attention is paid to decorative beds and borders, and, although the plants are all excellently grown and tended, their arrangement is, from the English point of view, somewhat inartistic and gaudy. Carpet bedding is a favourite form of flower gardening in Frankfort, and, again from our point of view, is overdone, but the Director probably knows best what appeals to the Continental public.

A novel feature of this garden is the amusements department, containing 12 tennis courts surrounded by a cycle track. These courts may be used by clubs or separate individuals upon payment of a subscription of £1 per year. In winter the courts are flooded and thus converted into an excellent skating rink, which attracts large numbers of visitors. Near to this is the shooting range, a covered structure which is used by clubs for competitions. The children's playground is an excellent idea, well carried out, and we have nothing better of the kind in the public parks in this country. It is well fitted up with swings, see-saws, giant strides and other arrangements, and its popularity is proved by the large number of children assembled there daily. Leaving the playground the visitor soon reaches the Rosary, an elliptical piece of ground planted partly in a natural and partly in a formal manner. It is said to contain 3,500 Roses of all kinds. They are thoroughly well grown, especially when the cold winters and the protective measures which they entail are considered. Naturally, the musical German is never satisfied without his band, and in Frankfort the music is excellent. A first-rate band of 40 performers, under a well-known conductor, performs twice a day during the summer.

The restaurant or gala palace is a fine building, erected in 1880 at a cost of £12,000 to replace the one burned down in 1879. It is used for receptions, balls, &c.

The gardens are open all the year round,

in summer from 7 a.m. and in winter from 8 a.m., until the close of the evening concert, usually about 10 p.m. The Palm house is open until 10 o'clock at night, and the new range from 7 a.m. till 8 p.m. in summer, and from 8 a.m. till sunset in winter. The price of admission is as follows, except in the case of shareholders, who have free access to all parts:—Adults 1s., children 6d., and on the first Sunday in every month 2d. for everyone in the morning, and 6d. and 3d. in the afternoon. The usual thing is for the inhabitants of Frankfort to take an annual ticket, which costs, for a family, 35s., and for a single individual 20s. Monthly tickets cost 10s. and 5s. respectively. There are also subscriptions for tennis, boating, shooting, &c., and inasmuch as the average annual number of visitors is 200,000, exclusive of shareholders and subscribers, it is evident that the financial position of the garden is as flourishing as the plants which it contains.

Naturally such a large establishment, open till late in the evening, requires numerous employés. The actual number is 150, including 50 gardeners, 25 garden labourers, 11 stokers and engineers, four carpenters and glaziers, 10 watchmen and constables, five to 30 casual workmen to take care of the lawns in the sports department, the number depending upon the time of year, and 40 musicians. The management is entrusted by the Board of Administration to two directors—Herr August Siebert for the garden section, and Herr A. Nippoldt for the commercial section. Herr Siebert has been intimately connected with the garden since its very earliest stages. He is to be heartily congratulated on the fine results which he and his colleagues have achieved.

FLORISTS' FLOWERS.

ANEMONE-FLOWERED CHRYSANTHEMUMS.

THE large flowered Anemone Chrysanthemums, and even the Pompon and the newer Japanese Anemone varieties, are seldom seen nowadays, even at the shows. Yet they are very beautiful subjects for decorative purposes, especially the well-grown and fully-developed blooms of Anemone and Japanese Anemone varieties, with their perfect discs and pretty ray florets. The sprays should be cut with at least 1 foot of stem and leaf, and then, when arranged in vases with their own or some other suitable foliage, such as Berberis, Prunus, Beech, Oak, or the more commonly-employed Asparagus plumosa, they form desirable objects for decoration. Displayed on a green board, they have little or no decorative value, but if shown in suitable receptacles, I am sure the section would again find favour. In the case of the Pompon Anemones, they should be shown in floriferous sprays at least 2 feet in length, and then a fine effect is obtained. As to varieties, I do not recommend many. Large-flowered sorts are represented by Mdle. Nathalie Brun, cream, tipped primrose; Mrs. Shimmings, amber and bronze; Ernest Cooper, amber and rose; Mrs. Judge Benedict, sulphur, with tinted blush; John Bunyan, rich yellow, with extra long florets; Cincinnati, lilac blush; Delaware, creamy white; J. Thorpe, Junr., bright yellow; Mme. Lawton, blush white; Mme. Heneage, an orange-yellow sport from Delaware; Mrs. H. M. Gardner, deep rose, tipped with gold; Owen's Perfection, lilac, tinted with gold, with lilac guard florets; and Souvenir de Mme. Blandinières, light crimson, tipped white.

Pompon Anemones should include Antonius, canary yellow; Bessie Flight, blush; Aglaia, blush, with a white centre; Ernest Carr, crushed strawberry; Emily Rowbottom, pure white; Marie Stuart, lilac blush, with a sulphur centre; Mr. Astie, golden yellow; Perle, deep rose; and Late Duchess, pure white. E. M.

FOREIGN CORRESPONDENCE.

FORCED FLOWER TRADE AT AALSMEER.

THIS little Dutch community lives by fishing and gardening on a small scale. The gardens are oases of made-up soil, collected by patient labour and surrounded by water. They are noted throughout the country for the good quality of the pot plants of Zonal and peltatum Pelargoniums, Fuchsias, Cinerarias, and Mignonette raised in them, and for their moderate prices. Till the end of the 'eighties in the last century, little else was cultivated beyond ordinary nursery stock, and that in the open ground, as scarcely any glass existed. Most of these plants were put on the markets at Amsterdam and Rotterdam; and even now, in the summer season, twice in the week small vessels in great numbers sail with garden produce to Amsterdam, or to the number of three or four are towed by a tug-boat or a motor. The times have altered, and with them the plants which the Aalsmeer people cultivate for sale. There are now many plant houses erected, which are filled with Belgian plants, such as Araucarias, Palms, and Imantophyllums; plants for supplying cut flowers, including Chrysanthemums, Dahlias, Bouvardias, and the like; besides plants for affording greenery, such as Asparagus, Medeola, Adiantum, and such pot plants as Begonia Gloire de Lorraine and Cyclamens.

In the summer the Ferns and hardier species are mostly grown in frames, and many of them pass the winter in them.

Most of the plant houses at Aalsmeer have to serve as forcing houses for Lilacs, Prunus, Deutzias, Magnolias, Rhododendrons, Viburnums, Azaleas, Spireas, Lily of the Valley, Tulips, &c., but chiefly for Lilac forcing. One Aalsmeer grower sells more than 30,000 bunches of forced Lilac in each season, the produce of 5,000 bushes. This business has not existed for any long time, the modest beginning having been made about 20 years ago. Whilst at one time there was a difficulty in finding purchasers for the forced flowers, now the demand exceeds the supply. With the exception of Azaleas, Tulips, and partially in the case of Lily of the Valley, most of the plants for forcing are grown at Aalsmeer. Although the soil is well suited to Lily of the Valley culture, large quantities of the crowns are bought in Germany, for the reason that they bloom earlier and are better for forcing generally than the Dutch-grown roots.

The Lilacs are transplanted in the period from the end of June to the middle of July, this being done in order to get the wood matured. The forcing of Lilac in pots is not much practised at Aalsmeer, and is, moreover, not suitable for plants that are grown for cutting purposes. Sometimes Lilac plants which are intended for early forcing are dug up in September and placed in a barn or shed for three weeks to dry out somewhat, the purpose of this operation being to induce a state of rest and ripen the flower-buds, which, after the first frosts, readily expand in the forcing house. If early frosts do not occur, the plants are taken to Amsterdam and kept for eight days in the refrigerators. In November a beginning is made with the forcing, and the plants are brought into the houses in sets. Shrubs prepared for forcing,

with the exception of Lilacs, are placed in sheds or protected from frost by a covering of tree leaves, so that they may be taken into the forcing houses at any time. In late autumn the Lilacs are dug up and placed in rows in the neighbourhood of the houses. The forcing of Lilac is not carried out by a hot-water system, but by ordinary iron stoves which are covered by big sheets of iron plate. Until January the Lilac plants undergoing forcing are abundantly syringed; but later it is almost omitted, except when the atmosphere has become very arid.

The varieties are placed in the forcing houses in the following order: Marie Legraye, Charles X., Andenken an Ludwig Späth, President Grévy, Jean de Brétagne, and Mme. Lemoine. The first two varieties are those very generally forced. Aalsmeer, not far distant from Amsterdam, can be reached from that city by steamer within two hours. *F. M.*

NOTES FROM A "FRENCH" GARDEN.

THE Radishes are now well up in the earliest beds, and Little Black Gott Lettuces have been planted.

We have lined the outside paths against the frames with short manure, but those between the frames must be strongly built, therefore we have employed long, strawy and very dry manure for making them. Fresh manure should never be used for lining the frames, as it is apt to cause an increase of temperature in the lights, which is injurious to the Lettuces. The lining now supplied is sufficient to last in ordinary seasons until the end of March. It has been possible recently to give plenty of ventilation to Lettuces and Cauliflowers in the cloches, by day and night; thus the plants are sturdy and are making good growth. It has not been necessary to use the mats even at night, especially where there are hot-beds. Experienced growers hesitate to cover the lights even in frosty weather if growth is rapid, as it tends to make the plants spindly.

We shall start the hot-beds for forcing Cos Lettuces under cloches early next week. The beds for the cloches are only 10 inches high when trodden down. We employ three parts dry manure and one part fresh manure as the best proportions for obtaining a mild and constant heat. The Cos Lettuces do not thrive well in a temperature exceeding 45° for they are attacked with aphides and mildew, especially if there are sudden changes in the weather. We shall sow Bellot Carrots as an intercrop in these hot-beds under cloches.

In the cold frames all the Passion and Little Black Gott Lettuces have been planted. These crops will need no more attention until late in February, but at that stage they will need to be ventilated.

Soil is being prepared for Melons and Tomatos, which will be sown next month. The compost consists of three parts well-sifted loam and one part decayed manure. The compost is placed under cover until needed. *P. Aquatias.*

COLONIAL NOTES.

SOLANUM NIGRUM.

THE article on this subject by W. W. (see *Gard. Chron.*, vol. xlv., p. 291) is very valuable. The plant is known in the West Indies (Trinidad and Tobago) as "Agooma," and is treated by the labouring classes much in the same way as is Spinach in England and elsewhere. The plant is a common West Indian weed, found on banks and roadsides alike. As it is eaten with impunity, I suppose no poison remains after boiling, as is shown by one of the highest authorities in W. W.'s contribution to be the case with its fruits if taken as dessert. W. F. Broadway, Tobago, W.I.

The Week's Work.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Raspberries.—Any planting should be finished at the first opportunity, assuming that the ground has been well dug and manured during the past autumn. Where specially fine fruits are desired, the canes should be trained to wire trellises. These should be 5 feet apart. The wires should be stretched on iron uprights or stout wooden posts about 6 feet in height and placed 12 to 15 feet apart. Five wires will be ample to each trellis. If the soil is of a light nature, plant the canes 1½ feet apart in the rows, but in deep rich loam and heavier land, they may be planted at a greater distance up to 2 feet apart. When the planting is finished, the canes should be tied temporarily to the wires. A mulch of half-decayed stable manure will assist the plants when root action commences, and will also protect the roots and crowns from frosts and drying winds. As soon as growth commences the canes should be cut down to within 6 inches of the soil. The roots must not be disturbed by digging or forking, but the ground between the rows should be hoed several times during the summer months, and all surplus suckers removed. Rivers's Hornet, Superlative, Fillbasket and Penwill's Champion are a selection of good red-fruited varieties. The last-named is a new sort and bears fine fruits of good flavour over a long period. The best yellow Raspberries are Yellow Superlative and Antwerp Yellow. Autumn-fruited Raspberries should be included for furnishing a few dishes of fruits in October. The shoots of these should be cut back to within three or four buds from the base, during the latter part of February, as the fruits are borne on the young canes. Remove all weak growths and avoid overcrowding the shoots. The best varieties of this type are October Red, October Yellow and Abundance.

Regrafting worthless Apples.—It is often found that some varieties of Apples, after repeated trials, will not succeed in certain localities. Where this is the case, the trees should be headed back for grafting later with proved sorts. Suitable scions may be saved when pruning; tie them carefully in bundles, label them, and heel them in under a north wall until required.

General remarks.—Make secure by staking all newly-planted trees. Use neat pieces of felt or some other soft material around that portion of the tree where the string is tied. See that an adequate supply of the various insecticides required for the spraying of fruit trees is at hand, in order that the work may be done directly the pruning and training are finished.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Perpetual-flowering Carnations.—The earliest batch of the tree or perpetual-flowering Carnations should be raised from cuttings taken as early in the New Year as possible. Before commencing this operation, get in readiness some clean 3-inch pots and drain them in a suitable manner. They may afterwards be filled rather firmly with a mixture of yellow sandy loam, leaf-mould, and coarse silver sand in equal proportions, placing a thin covering of sand on the surface. Select the cuttings from the most healthy and robust side growths and prepare them in the ordinary way. Four or six cuttings may be put in each pot, keeping them as close to the pot margin as possible, and making each cutting firm by means of a dibber. Plunge the pots to the rims in a hot-bed having a temperature of 70° to 75°. Keep the propagating case closed for a few days, and afterwards admit a very little air, increasing the quantity gradually. One of the most essential points in the cultivation of tree Carnations is to pay very great care to cultural details in the early stages of growth. They must not become pot-bound or it will cause a check. A list of excellent varieties would include Glacier, White Lawson, General Kuroki, Harlowarden, Harry Fenn, Mrs. Burnett, Winsor, Mrs. T. W. Lawson, Enchantress, and Nelson Fisher.

Souvenir de la Malmaison Carnations.—Autumn layers which have not yet been transferred to their final pots should be given this shift without further delay, as the roots will soon be active, and after that stage they are more liable to be injured during the operation. A suitable compost is one consisting of three parts fibrous yellow loam and one part peat, adding sufficient coarse silver sand, charcoal and lime rubble to maintain porosity. Place thin green stakes to the young shoots and make these secure by tying with raffia. Owing to the dryness of the atmosphere in the Carnation houses at this season both red spider and aphides are frequently troublesome, and it will be necessary to syringe or vaporise with insecticides. Specimen plants potted up in the autumn for early blooming should be placed in an atmospheric temperature of 50° at night, allowing an increase of 5° or 10° during the day, and admitting air on all favourable occasions. When the flower-buds appear some approved fertiliser may be applied and alternative waterings with soot-water.

Chrysanthemums.—As cuttings of the exhibition varieties which have formed roots are removed to a position near the glass in a cool greenhouse or frame, the propagating cases may be utilised for later batches of cuttings of decorative bush and single Chrysanthemums.

Caladiums.—Select a few of the earliest-ripened corms of such Caladiums as *C. argyrites* and *C. erubescens* for the cultivation in the stove, starting them at once.

Forcing house.—As the present plants become unattractive, let further batches be introduced of Dutch bulbs, Lily of the Valley, Freesias, shrubs, and any other plants which happen to be in flower.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of City Parks, Cardiff, Glamorganshire.

Utilisation of school playgrounds.—In the densely-populated districts of many towns and cities the space available for recreative purposes is so limited that the park authorities are often compelled to use the playgrounds of the council schools as auxiliary recreation grounds. Although these have many drawbacks, and can only, of necessity, be used after school hours and during holidays, they may, if carefully managed, be made to fulfil a very useful part in park economy, by keeping young children out of much physical and moral danger, by attracting them away from the crowded streets and thoroughfares of the town. From their restricted area and their close proximity to buildings, the management of school yards as general playgrounds is fraught with much more difficulty than in the case of ordinary recreation grounds. In the former there is always a danger of the play becoming monotonous to the children, and the consequent temptation of their getting into mischief and doing damage to adjoining property.

Supervision.—To make the best use of a school playground, it is necessary that an official should be in constant attendance to supervise and organise games. For this latter purpose a certain amount of apparatus, such as giant-strides, swings, &c., is essential. Only children attending day school ought to be permitted within the playgrounds.

Responsibility for cost.—In localities where the utilisation of playgrounds after school hours and during holidays has proved a failure, and their use discontinued, it will generally be found on investigation that no serious steps had been taken to encourage children to frequent them. In some towns the playgrounds of public schools are not thrown open for general use simply because the education authority and the parks department cannot agree as to whose duty it is to arrange and pay for the supervision of the ground, and make good any damage that may be done to property. That the provision of recreation for children after school hours is not one of the functions of an education authority should not require much proving, and that it is the duty of the parks authority to do so should require less, seems quite obvious to anyone giving the question a moment's consideration. The cost of upkeep and supervision of playgrounds, when used as indicated, should be borne entirely by the parks department.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Herbaceous plants.—The mild weather provides exceptional opportunities for the carrying out of all kinds of ground work, and no effort should be spared to complete these operations as soon as possible. The renovation of borders of herbaceous plants requires the exercise of much skill and forethought. It is necessary to take into consideration the heights of the various plants, the habit of growth, season of blooming, and the colours of their flowers. Another matter of consequence is to select only those plants which have the greater merit. I strongly recommend the exclusion of many of the stronger-growing species, which sometimes occupy valuable space that could be filled with plants of better habit, of more recent introduction and greater interest. There can usually be found places in other parts of the garden or semi-wild garden that might be planted with herbaceous plants of the more robust-growing type, including such species as Polygonum, Solidago, Helianthemum, Bocconia, perennial Asters, Aconitum, and the commoner varieties of Delphinium. If these are given a little attention at the time of planting in order to enable them to get a good start, they will flourish successfully under somewhat adverse conditions. In many gardens the hardy flower borders are severely called upon to supply flowers for use in the mansion, and for this reason alone it is necessary to select plants that are known to be exceptionally free-flowering, and that bloom well for a long period. Such subjects include Phloxes, Gaillardias, Pyrethrums, Astilbes, Iris germanica, Pinks, and Kniphofias. All these plants, with the exception of more recent varieties, are easily procured at a moderate expense, and should be included in every collection. In dealing with borders of more than average dimensions it is well to group the more robust and free-flowering subjects according to their size, but this grouping must not be done to such an extent as to cause the border to have an unattractive appearance when certain species pass out of bloom. Although as a general rule it is best to arrange the plants according to their approximate height, nevertheless if this is done in the main an excellent effect will be produced by planting some of the specially effective or interesting subjects nearer to the front, thus making them "dot" plants that will strike the eye. As many varieties of plants should be included in these borders as possible, the plants need not be allowed to attain to a large size, for better results will follow if the clumps are taken up every other year, or less often, divided and replanted. Always plant firmly, and, when dividing herbaceous plants, select the most vigorous portions for replanting. Label each plant neatly as the work proceeds.

General work.—Improvements and alterations that were decided upon during the last season of growth other than the overhauling of herbaceous borders should be completed, and the ground neatly forked over. Take the greatest care to preserve all labels, keeping them in their proper place. In cases where the ground has to be trenched or dug, care must be taken to remove the plants temporarily, laying them in until it is convenient to replant them.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Digging and trenching.—These operations will continue for some time to come. Most kitchen-garden crops require a considerable depth of soil, therefore it is desirable to trench and manure as much ground as possible each season, in order that the lower portion of the soil may be brought into a position in which it will be exposed to the influences of the weather. It will be found that crops cultivated in soil treated in this manner will remain freer from pests than when the ground is merely dug over.

Early Peas.—A liberal sowing of early Peas may now be made either on a well-prepared border or similar position. Young Pea plants are more prone to suffer injury from cold winds in March and April than from moderate frosts. If these early Peas are sown in trenches 6 inches deep and the seeds are covered with fine soil 2 inches deep, the trenches remaining 4 inches deep will afford the tiny plants some protection

directly after they show through the ground. One of the best varieties for early sowing is that known as Pilot. It should be sown in rows 4 feet distant from each other, and the haulm may be expected to grow 2½ feet high.

Peas in pots.—In gardens where conveniences exist for the cultivation of Peas in pots, small sowings may be made at intervals from the present time until the end of February. Thus may an occasional dish of Peas be obtained in April and May. Pots 8 inches in diameter are large enough for present sowings, but as the season advances 10-inch pots may be employed. A good rich soil is necessary, but only moderate heat, which at night must not exceed 50°. Harbinger, Sutton's Seedling, and Chelsea Gem are excellent varieties for pot culture.

Broad Beans.—These should be sown as soon as the soil is in a suitable condition, in heavy, rich soil of considerable depth. The seeds may be sown in rows 3 feet apart, allowing 6 inches between each plant and covering the seeds 3 inches deep.

Summer Spinach.—Seeds of Spinach may now be sown in as good a position as can be spared for this crop, sow in drill at 1 foot apart, making them 1 inch deep. As soon as the plants can be seen above the ground, the surface soil should be stirred with the hoe, and afterwards be kept perfectly free from weeds.

Carrots in pits.—If a sowing has not already been made in a pit, this should be done without delay, choosing a pit where a bed of leaves can be placed to the depth of 3 feet or 4 feet. These leaves should be trodden firmly, and they will afford sufficient warmth to the soil until the crop is in an advanced stage of growth. Carrots require a light, rich soil at least 8 inches deep. It should be made moderately firm, and its surface should not be more than 1 foot from the glass. The seeds may either be sown broadcast or in rows 6 inches apart. They should be covered half-an-inch deep with finely-sifted soil. As soon as the young plants can be seen air must be admitted in sufficient quantities to prevent the growths becoming drawn, and frequent waterings with rain-water will be necessary.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, G.C.B., Moulton Paddocks, Newmarket.

Peaches and Nectarines.—Trees which were started early in November being now in bloom will require a moderately dry atmosphere until the fruits have set. Employ a little ventilation whenever the weather is favourable, and pollinate the flowers each day about noon, using a camel's hair brush or rabbit's tail for this purpose. The atmospheric temperature at night should now be from 50° to 55°, and by day these temperatures may rise 5° or 8° higher. During dull and damp weather it is desirable to employ a little extra fire-heat during the middle of the day; this will allow the top ventilators to be opened for a few hours, and the change of temperature thus obtained will help to promote the setting of the fruits.

Successional trees.—Successional houses should now be closed, and a minimum temperature of 45° maintained at night. Give the borders a good soaking with tepid water if they are found to be in the least dry. While forcing operations are in progress, see that those parts of the border nearest to the hot-water pipes do not suffer from drought. A light mulching of manure obtained from a spent Mushroom bed will serve to encourage roots near to the surface, and also to conserve moisture in the border. Do not syringe the trees each day without considering the character of the weather out-of-doors, for there is no advantage to be gained by keeping the house excessively wet at this stage of growth. Its effect would be to hurry the trees into growth before the flower-buds open, which in some cases may be distorted or even pushed off the shoots by the developing growths. Syringe the trees, therefore, during the bright weather only, and at other times damp the paths in the houses once or twice each day, according to the degree of fire-heat that is in use. If the borders of any of the earlier Peach-houses extend out-of-doors, it is desirable to mulch these portions with a few inches deep of stable litter, and afterwards

to cover them with sheets of corrugated iron to protect them from rains and snow.

Late-fruited trees.—These must now be got ready for starting. Any pruning requiring to be done must be carried out. Take care to leave a good supply of young wood at the base of each tree. Thin the shoots liberally, if this is necessary to provide sufficient space for tying in the young wood without overcrowding. A well-balanced tree should have the branches a little closer at the sides than in the centre. In the case of pyramid or pot trees, thin the shoots somewhat severely, leaving only sufficient of the most sturdy shoots for bearing fruit. When the pruning has been done, sponge the trees with some good insecticide, and thoroughly scrub any rough bark on the older part of the tree. Cleanse the wood-work, trellis and glass of the house, both inside and out, with hot soapy-water, and apply a liberal coating of limewash to the inside of the walls. In the case of old-established trees, remove carefully the loose, and inert soil from the surface of the border, and in its place apply a top-dressing consisting of four parts loam and one part each of well-decayed manure and old mortar rubble, with a sprinkling of bonemeal. Tread or beat the fresh material until it is quite firm, and afterwards apply a mulch as advised for the earlier trees.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Platyclinis.—The growths of *P. glumacea* and the variety *valida*, when about 2 inches high, commence to send forth a number of roots which quickly enter the soil, and if the old potting material is worn out, or the plant needs a larger receptacle, it may then be repotted. If it is inconvenient to repot the plant at that time, it should be done immediately after the flowers fade. The variety *valida* can easily be distinguished from the type by its broader foliage, pale-green-coloured growths, more robust habit, and shorter but less graceful inflorescence. Either pots or shallow pans may be used, but pans are preferable, as they are, by means of suitable copper-wire handles, easily suspended to the roof. They should be provided with an ample drainage of clean, broken crocks to three-fourths of their depth. A compost consisting of Osmunda fibre, Polypodium fibre, and Sphagnum-moss in equal parts will suit all the members of this genus. These materials should be cut up moderately fine, and be well mixed together. Should the Sphagnum-moss be very wet, the water should be well squeezed out of it and plenty of very small crocks added. Very little water will be needed for a week or two after repotting; merely keep the surface of the compost just moist by using a fine sprayer, or fine-rosette watering can. After that time, and all through the growing season, water must be freely supplied, and on bright days the under sides of the leaves should be syringed, in order to keep them clean and free from red spider. *P. uncata*, now in bloom with about 50 of its pretty and graceful racemes of greenish-yellow flowers, forms a striking and pleasing object. The slender flower-spikes are produced from the centre of the young breaks, which are at present only half-grown. Afford this plant copious supplies of water until the growth is fully matured. *P. Cobbiana* is another pretty species that has recently gone out of bloom, and will require similar treatment to *P. uncata*. The summer-flowering *P. filiformis* has completed its growths, and will consequently require less water at the root, but, although the plant is at rest, the compost and roots should be kept just moist, in order to prevent the small bulbs from shrivelling; the thin grass-like foliage must be sponged and sprayed often, to prevent insect pests. All the species of *Platyclinis* thrive well suspended to the roof of the intermediate house, in a light position, but where the sun does not at any time shine directly upon them.

Cattleya Triana and *C. Percivaliana*.—Plants of these species that are now prominently showing their flower-buds in the sheaths should be given rather more water at the root, but do not saturate the compost, or the roots will probably decay. As the flowers open, the quantity should be lessened by degrees, and the plants kept moderately dry till growth recommences.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, JANUARY 20—

Gard. Roy. Benev. Inst. Ann. Meet. and Election of Pensioners at Simpson's Restaurant, Strand, 2.45 p.m. Friendly supper in the evening. Linnean Soc. meet.

FRIDAY, JANUARY 21—Roy. Inst. Lecture.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich 38°6'.

ACTUAL TEMPERATURES.—

LONDON.—Wednesday, January 12 (6 p.m.): Max. 40°; Min. 34°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 13 (10 a.m.): Bar. 30.2; Temp. 38°; Weather—Bright.

PROVINCES.—Wednesday, January 12: Max. 43° W. Ireland; Min. 33° Durham.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Bulbs, Perennials, Lilioms, &c., at 12; Roses and Fruit Trees, at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

Dutch Bulbs, Herbaceous Plants, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Azaleas, Palms, Ferns, &c., at 5; Trade Sale of Miscellaneous Plants and Bulbs, at 12; 1,644 cases Japanese Lilies, Iris, Acers, &c., at 2.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Unreserved Sale of Choice Cypripediums from the "Willow Wood" Collection of Orchids, by order of Drewett O. Drewett, Esq., at The Coal Exchange, Manchester, by Protheroe & Morris, at 1.

Why Plants are Green?

In a recent publication, on the subject of plant colour and sunlight, Professor Stahl endeavours to supply an answer to the problem: Why plants are green? The facts that plants contain a green substance, chlorophyll, and that this substance is a mixture of two pigments, one blue-green and the other yellow-orange, are well known. The question to which Stahl seeks a reply is: Why should chlorophyll be green? Since a solution of chlorophyll, held up to the light, looks green, it follows that it allows the green rays of the spectrum to pass, and that it absorbs much of the red and blue end of the spectrum; just as green signal glass is green because it absorbs much of the red and blue and transmits the green. The original question, therefore, is capable of restatement in the following terms: Why do plants, all the world over, possess a pigment which is transparent to green light, but more or less opaque to red and blue light? We know, of course, that the plant utilises the energy of sunlight for the manufacture of one of its chief food-substances—sugar. We know further that it is the energy of the red and orange end of the spectrum which is employed by the plant for this purpose. Stahl concludes from his experiments that the energy of the blue end of the spectrum is also made use of by the plant for running the machinery engaged in sugar-manufacture. That this is the case is indicated also by the work of previous observers.

Incidentally, it may be remarked that it follows from these well-established facts that the old practice of growing shade-plants, Ferns for instance, in a house glazed with green glass is unsound. Such glass will stop much of the red and blue parts of the spectrum, that is, the parts which are required for doing the work of food manufacture. As is generally recognised in practice, the weakening of the light to which such plants are subjected is best secured by shading. But, to return to our problem. If, as we know is the case, light is indispensable for plants, why should not chlorophyll be black or grey. For substances of these colours would absorb equally all parts of the spectrum, and so put more energy at the disposal of the leaves, and hence, as it might be supposed, speed up the process of manufacture. That the pigment-producing powers of plants are not restricted to green is evident from the colours of flowers, fruits, and red-foliaged plants. In particular, the red Sea-weeds possess a red pigment surrounding and making the green chlorophyll. A piece of red Sea-weed dipped into hot water turns green, owing to the destruction of the red pigment, which hides the green chlorophyll which lies beneath it.

Hence, it cannot be urged that plants are green because they cannot form any other leaf-pigment.

Now, we understand fairly well, in the case of the red Sea-weed, the meaning of the presence of this extra, masking pigment. The red Sea-weeds live, for the most part, in deep water. Water is not perfectly transparent. Indeed, we may say that water is a blue liquid; for, if there be a sufficient thickness of water, the only rays which pass through it are those at the blue end of the spectrum. Therefore, the light which reaches a piece of red Sea-weed in deep water is deficient in the red and orange rays. The red and orange, however, are the parts of the spectrum which chlorophyll absorbs and utilizes for doing manufacturing work. To meet the contingency of a shortage of radiant energy, the red Sea-weed devises a red pigment, which absorbs some green and blue light and puts the energy of these parts of the spectrum at the disposal of the plant. Thus we may say that the pigment of the red Sea-weed is complementary in colour to that of the light which falls upon it. The light in deep water is mainly green-blue; the pigment is of the complementary colour, namely, red, and the result of this is that the available light is absorbed. Recent experiments by another observer have shown that this principle of the pigment of a plant being complementary in colour to that of the light which falls upon it holds good in a remarkable way for another set of plants—the blue-green Algæ. According to these experiments the actual colour of a blue-green Algæ changes according to the quality of the light which falls upon it, the change being of such a nature that the resulting pigment is complementary in colour to that of the light.

Applying these ideas to green plants, Stahl reaches the conclusion that the greenness of vegetation is the result of an adaptation on the part of plants to the quality of light that falls on them. This light is of two kinds—direct and diffuse. In direct sunlight the red and orange rays predominate. One component of chlorophyll, a blue-green pigment, is, as it were, a specialist for the absorption of

these red and orange rays. In diffuse light there is less of the red and orange part of the spectrum and more of the blue; the other constituent of chlorophyll, a yellow-orange pigment, secures the absorption of the blue rays. Thus, by virtue of its two pigments, which, together, constitute the green chlorophyll, the plant makes the best of both worlds: the world of direct sunlight and that of diffuse sunlight. Black and grey would be too efficient, for the machinery of the leaf is delicate and subject to injury. Even as it is, in intense sunlight the chlorophyll-apparatus is apt to be damaged if too much light is absorbed. A green pigment secures the happy mean. By it, alike on bright days and dull days, enough radiant energy is absorbed to drive the plant's machinery, but not so much as to over-drive it.

OUR SUPPLEMENTARY ILLUSTRATION.—As

an example of high cultivation of *Cœlogyne cristata*, the specimen shown in the Supplementary Illustration is certainly remarkable. It was grown by Mr. E. DOLBY, gardener to ZEN'S CRANE, Esq., Dalton, Mass., U.S.A. In a letter addressed to Mr. W. H. WHITE, to whom we are indebted for the photograph, Mr. DOLBY states that he started 20 years ago with a small plant, and every year it has increased in size and strength. When in flower the plant has a diameter at the base of about 6 feet 6 inches, and there are 1,400 flowers open on the plant at the same time. Whenever it has been repotted or retubbed, plenty of drainage has been employed, and the plant has been raised or coned up on a firm mass consisting of "peat" (presumably American *Osmunda* fibre), Sphagnum-moss and charcoal. Each year, fresh Sphagnum-moss has been packed amongst the pseudo-bulbs, placing layer upon layer, and making a good, firm, solid compost. Through the summer the plant is kept cool and shaded from strong sunshine. It is afforded an abundance of water at the root, and occasionally an application of weak, liquid manure water. During the winter the minimum atmospheric temperature is about 50°. Water is withheld during the flowering period, and for a short time afterwards. Mr. DOLBY deserves the congratulations of English Orchid growers on his highly-successful cultivation of this useful and well-known species.

THE ROYAL BOTANIC SOCIETY.—In reply to the letter from Mr. PEMBROKE S. STEPHENS, printed on p. 26, the Rev. W. WILKS, secretary to the Royal Horticultural Society, has sent the following letter:—"The letter of invitation" was written by me and not by our president; and it was published by Mr. H. J. VEITCH, a Fellow of both societies of long standing. We have, however, made no proposal, as we felt at the conference that any definite 'proposal' should have come from the Botanic—still more should it do so now that your society 'is in a better position relatively than for some years past' and its prospects are so good, as we were glad to learn from your communication of December 7."

ROYAL METEOROLOGICAL SOCIETY.—An ordinary meeting of the Society will be held at the Institution of Civil Engineers, Great George Street, Westminster, on January 19, at 7.30 p.m. The annual general meeting will be held at 7.45 p.m. The Symons' Gold Medal will be presented to Dr. W. N. SHAW, F.R.S., and an address on "Some Relations of Meteorology with Agriculture" will be delivered by Mr. HENRY MELLISH, president.

NATIONAL VEGETABLE SOCIETY.—The secretary informs us that Lord HOWARD DE WALDEN has presented a sum of seven guineas to constitute the second prize in the class for a collection of 12 kinds of vegetables, in which the first prize of 10 guineas is offered by the President, the Duke of PORTLAND. The committee hope to secure a liberal third prize, and thus make this class one of the most important at the exhibition to be held next September. The Committee hope to publish the schedule in the course of a few days.

LINNEAN SOCIETY.—The next general meeting of the Society will be held on Thursday, January 20, at 8 p.m.; it will be devoted to a discussion on "The Origin of Vertebrates," in which the following gentlemen have consented to take part: Dr. GASKELL, Dr. GADOW, Mr. GOODRICH, Professor STARLING, Professor MACBRIDE, Dr. SMITH WOODWARD, and Professor DENDY.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed that the Hon. HARRY L. W. LAWSON will preside on June 22 next at the 71st anniversary festival dinner, to be held at the Whitehall Rooms, Hotel Metropole, in aid of the funds of the Gardeners' Royal Benevolent Institution.

THE BARR MEMORIAL.—The executive committee charged with the promotion of a memorial to the late PETER BARR met at the Royal Horticultural Society's Hall on Tuesday last. Mr. WILLIAM MARSHALL was appointed chairman, Mr. HENRY B. MAY treasurer, and Mr. C. H. CURTIS secretary. Our readers will remember that the objects include the provision of a Barr Gold Medal, to be awarded each year by the Narcissus Committee, and a sufficient sum of money to maintain a child on the Royal Gardeners' Orphan Fund. The committee will issue a public appeal for the purposes as soon as possible.

"ALL ABOUT SWEET PEAS."—We have received from Mr. ROBERT SYDENHAM the fifth edition of his popular little book on Sweet Peas. It contains descriptions of varieties under 700 names, but it is pointed out that many of these are too much alike to each other to be worth keeping separate. Much useful information is given on the cultivation and exhibition of Sweet Peas. There are a few blank pages at the end of the volume for memoranda.

"MY GARDEN DIARY FOR 1910."—This dainty little Annual, from Messrs. SUTTON & SONS, is again before us. The 1910 issue, like its forerunners, contains cultural reminders for each month in the year, monthly notes on changes of the moon, quarter days, and other events in the business and sporting year; the average reading of the barometer for each month, and the average temperature and rainfall. This useful little pamphlet is published by Messrs. SUTTON & SONS at the price of 1s.

"THE BRITISH FERN GAZETTE."—The second number of this new periodical, devoted exclusively to British Ferns, has just been issued by the British Pteridological Society. It contains a good illustration of *Lastrea montana plumosa*, an article on spore propagation, an enumeration of the Ferns discovered by Mr. GEO. WHITWELL, an article on *Polypodium vulgare* by Mr. C. T. DRUERY, and one on the hybridisation of Ferns. Dr. F. W. STANSFIELD contributes interesting notes on some of the more prominent pioneers in Fern-culture. The secretary of the Pteridological Society is Mr. GEO. WHITWELL, Serpentine Cottage, Kendal, Westmoreland.

THE SUTTON ROSE SOCIETY will hold its annual show on July 2. The hon. secretary is Mr. C. W. EDWARDS, Brentwood, Ringstead Road, Sutton.

THE LEEDS PAXTON SOCIETY will hold a Chrysanthemum Show in the Town Hall, Leeds, on November 18, 19. The secretary is Mr. R. D. Day, 12, Chandos Avenue, Roundhay, Leeds.

KEW GUILD.—We are requested to state that it has been decided by the committee that the annual general meeting, to be followed by a social gathering, will be held at Kew this year on the Monday preceding the Temple Show, and not at the Holborn Restaurant, as formerly. Old Kewites are further asked to note that, in accordance with the decision at the last annual meeting, the next *Journal* will not be issued until June. It will, in consequence, be a double number. Mr. A. GARNETT has temporarily undertaken the duties of honorary secretary, and Mr. J. COUTTS has been appointed honorary treasurer.

PROPOSED UNION OF THE EDINBURGH HORTICULTURAL SOCIETIES.—In our review of the past year (p. 434, December 25), we expressed the hope that the two principal horticultural societies in Scotland would amalgamate. It is, therefore, gratifying to know there are indications that the councils of both societies recognise the desirability of the union. At a largely-attended meeting of the joint councils of the Scottish Horticultural Association and the Royal Caledonian Horticultural Society, Mr. J. W. M'HATTIE in the chair, the position of both societies was fully discussed. On the motion of Mr. W. H. MASSIE, it was unanimously resolved to "report to the annual business meetings of both Societies that, at a joint meeting of the councils, held on January 7, 1910, it was agreed to recommend to the members that, in the interests of Scottish horticulture, it is highly desirable that negotiations be entered into with a view to their amalgamation." It looks, therefore, as if we may soon expect to witness a revival of horticultural activity in Edinburgh under the direction of a united and strong council.

"SMALL HOLDINGS" AT BERLIN.—The authorities of the city of Berlin have in view the formation of small holdings on the civil landed estates, situated in various parts of the metropolis. A resolution on the subject has been prepared and presented by a deputation from the canal works and the Berlin estates. In the coming estimates means are to be found for the establishment of a farm in Frederikenhof. The holders will engage principally in market-gardening, and 1,725 hectares of the town lands are already let to tenants.

DR. F. FRANCESCHI.—After a period of about 15 years as head of the Southern California Acclimatising Association, Dr. FRANCESCHI has retired from the position. He will introduce and test new plants at his residence, Montarioso, City of Santa Barbara, California.

GERMANS ON BRITISH FORESTRY.—In view of the controversy in the Press as to the practicability of the afforestation scheme submitted by the Royal Commission, it may be of interest to note the opinions of German experts with regard to the question. Dr. SCHWAPPACH, Professor at the Royal School of Forestry at Eberswalde, and one of the best known of all experts in forestry, discussed the question in a recent issue of the *Allgemeine Forst und Jagd Zeitung*, a paper devoted entirely to forestry and game preserving. He first gives an outline of the scheme, and then proceeds to discuss it from a German standpoint. In his opinion, the com-

missioners' scheme is decidedly well thought out. He maintains that the soil in the British Islands is distinctly favourable, and the climate better than the average in Germany, whilst the demand for timber is very high. The only reason that the existing woods in England do not pay is simply because they are badly managed. The question of unemployment is, in his opinion, a difficult one, owing to the obstacles in getting the men to the places where they are needed, and to the ever-changing number of men out of work. Although the commissioners may think that they have solved this problem, he is of opinion that it is impossible to get together, from the ranks of the unemployed, enough men of the right kind, although in a few years there would be less difficulty in finding them. Professor SCHWAPPACH thinks the estimates too low for damage by fire, storms, insects and fungi, and that the expense of organising unemployed labour would work out dearer than if skilled men were employed in the first place. In spite of this, he points out that the question of unemployment should not be allowed to drop, for although the unemployed may not be suitable for forest work, they will be indirectly affected by the increase in labour. In England, he says, there are not at present enough trained men to take control of such a gigantic scheme, whilst the antagonistic attitude of certain landowners, as shown through the Press, cannot be too strongly condemned. He expresses the hope that this most important question may be soon taken up in England, and that the scheme now under consideration may have better luck than previous schemes have had. Dr. SCHULTZE, in the *Deutsche Forstzeitung*, also takes a decidedly favourable view, his remarks as to the favourable conditions of soil, situation, &c., being practically identical with those of Prof. SCHWAPPACH. He compares the areas under timber in the more important countries of Europe, and points out that England, with its small forest area, would be practically without wood should the private owners, to whom it nearly all belongs, decide to cut down and not replace these trees. He sees no objection to the use of the unemployed for this work; indeed, he points out that in view of the lack of work in England, the people should lose no time in taking up the subject. He believes that the commercial aspect of the scheme is sure to appeal to the English people, who, with their characteristic thoroughness, coupled with the apprehension of unemployment, which is an ever-pressing problem with them, will not rest content until the scheme suggested by the Commission, or a similar one, has been put into operation. They have, he says, the land, the climate, and the demand for timber. They also have plenty of labour; it does not seem to require anything more, except the co-operation of landowners, to enable the British Islands in time to produce most of the timber they need.

AN APPLE-SPRAYING CALENDAR.—At the conclusion of a thorough and admirably-illustrated account of their investigations into the life history of the Apple-blotch fungus (*Phyllosticta solitaria*), Messrs. SCOTT & RORER publish the following recommendations for the combined spraying treatment of Apple orchards to keep down Apple blotch, scab, bitter rot, codlin moth and other enemies of the trees. The spray recommended is Bordeaux mixture 4:4:6:50; that is, 4 lbs. of copper sulphate, 4 to 6 of lime (four if it slakes completely into a smooth paste), and 50 gallons of water. The spraying apparatus recommended is a gasoline power outfit. First application: just before the blossoms open. Important for scab. Second application: Immediately after the petals have fallen. This constitutes the second treatment for scab, and the first for the codlin moth,

and is the most important treatment for each. In the Bordeaux mixture 2 lbs. of lead arsenate or 6 ozs. of Paris green (for control of codlin moth and other insects). Third application: Three to four weeks after the second; for Apple blotch and codlin moth. Fourth application: Eight to nine weeks after the petals have fallen. This is the first treatment for bitter rot, the second for blotch and the third for the codlin moth. Fifth application: Two to three weeks after the fourth; it is the second treatment for bitter rot, the third for blotch, and is important for the codlin moth. Sixth application: Three weeks after the fifth, last treatment for bitter rot and blotch, and is important for prevention of late infections and for control of the second brood of the codlin moth. If in a particular locality scab is the only serious fungus pest, then only applications one to three need be given as above, using in fifth and sixth the arsenical spray only. In the second application the strength of the spray should be reduced to 2 to 3 lbs. copper sulphate, 3 to 4 lbs. lime to 50 gallons of water, in order to reduce damage to setting fruit. The contribution, which

DEVELOPMENT OF THE SOY BEAN.—The Soy Bean (*Glycine hispida*, Maxim) is an important article of food in China, Japan, and India, being largely cultivated in all these countries. In India it is widely spread in the outer Himalaya and tropical regions from Kumaon to Sikkim, and from Khasia and the Naga Hills to Upper Burmah. Its experimental culture in some warmer parts of Europe has been attended with some success, but it is especially in the East that the plant has obtained importance as an economic species. There are numerous varieties, distinguished by the size, shape, and colour of the seeds, the chemical composition of which, says Sir ARTHUR CHURCH, "entitles the Soy Bean to the highest place, even amongst the pulses, as a food capable of supplementing the deficiencies of Rice and of other eminently starchy grains. Very few vegetable products are so rich as this Bean at once in albuminoids and in fat or oil, the former constituent amounting, on the average, to 35 per cent., and the latter to 19." For culinary purposes the ripe Beans are recommended to be soaked for a long time in

seem that something of this nature is now being accomplished. Our contemporary says: "It is strange to what impulse the recent improvement in the shipping outlook may be attributed. For instance, nobody would have imagined that the export of Beans from Manchuria would have been on a scale of such magnitude as to give quite a fillip to freights by providing many cargoes and drawing ships away on long distance voyages. This export trade seems to have assumed big proportions in a remarkably short space of time. One of its centres is the port of Dalny, and it is said that during the season which began in November, 1908, and closed in June, 1909, over 150,000 tons of Beans were shipped thence to Europe, chiefly to Liverpool, Hull, and Bremen. During the same period 143,000 tons were shipped from Vladivostock, of which more than one-half came to the United Kingdom. At the present time the trade has assumed even greater dimensions, and is affording business for a large amount of British shipping. It would appear that the export can be developed enormously, and that there is a very large market for the article. It is used in this country for the production of oil suitable for cooking, soap making, lubricating, and other purposes. At the same time the crushed Beans form an admirable food for cattle. It is said that attention was first called to the Soya Bean when manufacturers of cottonseed oil found their supplies from India and Egypt falling short. This sort of thing is catching, and there is now an expectation that Central China will endeavour to compete with Manchuria for the European market." Thus it would seem that we have here, in this one plant, sources of three new products—namely, meal for human food as well as for cattle feeding, a new source of oil, and a new by-product for use as manure.



FIG. 28.—BEAUMONTIA GRANDIFLORA IN THE NATAL BOTANIC GARDENS.

is published by the Bureau of Plant Industry (Bulletin No 144, 1909), U.S. Department of Agriculture, demonstrates the thoroughness with which the department is dealing with orchard pests and the firmness of the belief of the Americans in the remunerative results to be obtained by regular, periodical spraying. The spraying, it should be noted, is done partly through two 35 feet leads of discharge hose, the operators working from the ground, and one, of 15 feet, for the use of a man in the tower of the outfit to enable the tops of the trees to be reached. Each lead is attached to a 10 feet bamboo spray rod fitted with a double Vermorel nozzle, deflected so as to direct the spray inward and downward. Among the plates illustrating the text are several contrasting the crops obtained from properly sprayed and unsprayed trees. It is by no means improbable that the discordant results announced by various people in this country who have adopted spraying as a general method of keeping down pests, are due to unsystematic methods. For this reason we have dealt at length with the series of experiments by Messrs. SCOTT & RORER.

warm water before they are cooked. In addition to the direct use of these Beans as an article of food they furnish, in China and Japan, the well-known sauce known as Soy, which is imported into Europe in considerable quantities, forming, it is said, the chief ingredient in most of the well-known table sauces. After the expression of an edible oil the residue is made into a kind of Bean cake, mostly of a large size and circular shape, and sometimes weighing as much as 60 lbs. These cakes are used both for feeding cattle and as manure for the land. One of these large cakes is exhibited in the Kew Museum. Quoting again from Sir ARTHUR CHURCH: "These residual cakes form an extremely rich cattle food, containing as they do 40 per cent. of flesh formus and 7 per cent. of oil." With all these qualifications it may seem strange that the Bean has not become generally utilised in European commerce. The production of Bean cake is one of the most important industries of Manchuria, and from recent advertisements in the daily Press of a new "Soya" biscuit, together with the following extract from the *Daily Telegraph* on the increasing traffic in these Beans, it would

PUBLICATIONS RECEIVED.—*Bulletin of Miscellaneous Information*. Royal Botanic Gardens, Kew, No. 10 (London: Darling & Son, Ltd.) Price 3d. (Contents: Phytochemical Investigations at Kew, Diagnoses Africanæ, Malayan Ferns, and miscellaneous notes.)—*Journal of Botany for January*. (West, Newman & Co., 54, Hatton Garden, London.)—*University of Illinois, Agricultural Experiment Station*. Bulletin No. 140: Dairy Suggestions, by Wilber J. Fraser and Royden L. Brand. Bulletin No. 137: A Study of Factors Influencing the Composition of Butter, by Carl E. Lee, Nelson W. Hepburn, and Jesse M. Barnhart. Circular No. 133: Feeding the Pig, by Wm. Dietrich, Assistant Chief in Swine Husbandry. Circular No. 131: Handling of Cream and Making of Butter on the Farm, by Carl E. Lee.—*Volume XXIV. of Boletim da Sociedade Broteriana*. (Coimbra University.)—*Sweet Peas*, by Walter P. Wright. (London: Headley Bros.) Price 2s. net.—*Quarterly Journal of Forestry*. No. 1, vol. iv. (January, 1910.) (London: Laughton & Co., Ltd.) Price 2s.—*Colonial and Foreign Statistics*. Vol. xliii., Part IV., Board of Agriculture and Fisheries. (London: Eyre & Spottiswoode, Ltd.) Price 6d.—*Agricultural Bulletin of the Straits and Federated Malay States*, by H. M. Ridley. (December, 1909.) (Straits Times Press, Ltd., Singapore.)—*Practical Rose-growing in All Forms*, by F. W. Dodds. Price 1s. and 2s. 6d.

BEAUMONTIA GRANDIFLORA IN NATAL.

THIS evergreen climber is a very beautiful object when rambling over a trellis or depending from the roof-rafters of a warm greenhouse or stove. But it has a better effect when seen in full flower out-of-doors. The plants illustrated in fig. 28 are growing in the Natal Botanic Gardens. They were planted out ten years ago at the foot of a bank. The stronger shoots were pegged down, and they now cover an area of 300 square yards. The flowers are pure white. We are indebted to Mr. James Wylie, the curator of the Natal Gardens, for the photograph.

COCKROACHES IN PLANT HOUSES.

THESE destructive insects belong to the Orthoptera, which also includes the grasshoppers, locusts, crickets, and leaf and stick insects. The common cockroach (*Blatta orientalis*) is familiar to most gardeners. Two other species, namely, *B. australis* and *B. americana*, are also fairly common in plant structures; whilst more rare in this country are two species of *Nauphoeta*, *N. cinerea* and *N. Brazzæ*, and the distinct and pretty *Leucophaea surinamensis*. They feed during the night, and, without exception, are extremely destructive to plants, feeding principally upon the soft tissues of both leaves and flowers. Flowers having a strong perfume, such as Orchids, *Eucharis*, *Crinum*s, and *Hedychium*s, are often badly attacked by these pests, whilst other flowers near by are left uninjured.

The eggs of the cockroach are not laid separately, but are enclosed in a hard, brown case,

jars, each containing a small quantity of oil, were placed about the house, and as many as 76 cockroaches have been found in a single jar. The oil requires to be changed every third day, as it quickly becomes rancid in a warm house, and unattractive to the pests. The jar should always be placed against a wall or plant, so as to afford a foothold to reach the mouth of the jar. Other cheap and effective baits which may be used in place of, or alternated with, the oil, are treacle and water, and treacle and beer. These also require to be replenished when they become sour.

Amongst poisons, phosphorus paste, Chase's beetle poison, and Beetle-cute have all been tried frequently, but I have found flowers and foliage attacked when surrounded with these baits. The revolving metal traps are, in my opinion, almost valueless. If a hedgehog is present in a house during the night-time where these pests abound, it will destroy many of them. *C. P. Raffill.*

to the effect of grass on tree roots are needful, because, as they do not usually grow fruit on grass, the matter would have no interest for them. If any experiments can be undertaken which shall help to show practical men how to grow still finer fruit than they now obtain, and to secure heavier crops, well and good; but, after all, the finest of all experiments in that direction are those undertaken by the growers themselves in their plain, practical way. *A. D.*

"THE VEGETABLE GROWERS' GUIDE."

Whilst thanking you for the appreciative reference to the *Vegetable Growers' Guide* on p. 4, I may state, as a fact, that impaired health precluded my taking any part in either writing or editing the work. Whatever value it may possess is due to my sons. What a splendid New Year's issue of the *Gardeners' Chronicle*—a "record," surely, in horticultural journalism! *John Wright, Wandsworth.*

EUPATORIUM RAFFILLII (see p. 10).—The specific name of this plant should be *atro-rubens*. If Lemaire's *L'Illustration Horticole*, vol. ix. (1862), t. 310, be referred to, it will be seen that the figure there given of *Hebeclinium atro-rubens* is exactly the same plant as *Eupatorium Raffillii* figured in the *Botanical Magazine*, t. 8227. There is also an uncoloured figure of it in *Floral World* (1876), p. 371. In the early 'eighties it was rather a common greenhouse plant, but it appears to have been nearly lost to cultivation. I have had it in my conservatory under its old name for more than 20 years. *R. H. Beddome.*

IPOMŒA (EXOGENIUM) PURGA (see p. 21).

This plant appears to be quite hardy in sheltered places in north-east Kent. A specimen planted for several years against my house, with a western aspect, has flowered well every autumn, although it has had no protection. As is to be expected, most blooms are developed in seasons following a warm summer. *C. Prentis, Posiers, Borden, near Sittingbourne.*

LATE CHRYSANTHEMUMS.—In the lists of late Chrysanthemums given by Mr. Molyneux (p. 11), also Mr. Rawlings and others (p. 21), the variety Mrs. S. J. Fogg is not mentioned, notwithstanding it is one of the very latest—if not the latest—of all Chrysanthemums. In a house with a northern aspect there is no difficulty in having a supply of blooms as late as February. It is invaluable where large quantities of cut flowers are in demand. The flowers are of a pleasing rich yellow tint: they are of the Japanese type, and are borne on long, stiff stems. This variety supersedes the older Golden Gem variety, the constitution of which has become weak, causing the shoots to be susceptible to attacks of the rust fungus. Other late varieties which are largely grown in these gardens are A. J. Balfour, Winter Cheer, François Pilon, Mrs. J. Thomson (both yellow and white kinds), Yellow Princess Victoria, Framfield Beauty (deep crimson), and Jessie Angus (pink); the two last-named are single-flowered varieties. *E. H., Frogmore.*

CHIEF OFFICER OF THE L.C.C. PARKS.

Readers will appreciate your leaderette in last week's issue on the forthcoming appointment of a chief officer for the L.C.C. parks and open spaces. With upwards of 5,000 acres to supervise, and a staff numbering 1,000 to control, the task, as you say, is not an easy one. That the head of such a popular and extensive department as the parks department should be offered a salary so much inferior to that given the heads of all other departments under the Council is a curious anomaly. Now the salary is £600, yet in the early days of the L.C.C., some 18 to 20 years ago, £700 per year was offered. The acreage of the parks has increased since that time by about 3,000 acres, and the staff is greater in proportion. It is not easy to explain why the parks department of London, with its popularity, should be treated as inferior to all other departments of the same service, but it is. According to "Whitaker," there are 24 heads of various departments: five are paid £2,000 per year, 14 range from £1,000 to £1,750, one is paid £900, another £850, two others £800 each, and the parks £600. Only a few months ago a stores chief officer was appointed at a commencing salary of £1,000. *Observer.*



FIG. 29.—FLOWERING SPRAY OF BEAUMONTIA GRANDIFLORA: FLOWERS WHITE.

(See p. 42.)

usually about a quarter of an inch long. Each case contains about 16 eggs, and is at first carried about by the female, attached to the abdomen by a gummy matter. Later, they are left in dark nooks and crannies, where they remain until the young are hatched. In the adult cockroach the body is flattened; the antennæ are long and thread-like.

One of the best means of eradicating these pests from plant houses is to carefully stop up, with cement or mortar, any holes in the walls. Particular attention should be paid to cavities near the hot-water pipes, and especially the holes in the brickwork where the hot-water pipes are carried through, as it is in such warm, dry places that they hide during the daytime. In small houses this method of dealing with them is far more effective than the use of traps or poisons. In large houses, which afford numerous hiding-places, other means of destroying them must be adopted. One of the best means of trapping cockroaches I discovered, quite by accident, in the Palm House, at Kew, some 10 years ago. A bottle of sweet oil, which was used for oiling tools, was accidentally broken one evening, and next morning a portion of the bottle containing a small quantity of the oil was found to be full of cockroaches. After this, a large number of jam

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE EFFECT OF GRASS ON TREES.—Mr. Elwes' testimony (see p. 13) as to the way in which trees of many descriptions thrive on grassland can be supported from 10,000 lawns, parks and meadows. So far as fruit trees are concerned, I do not know that any one advises the immediate surfacing over the soil above the roots with turf or with grass from seeds. That is done only when trees are planted to form a grass orchard, and many such orchards exist with trees of great age and in a fine condition of health. No one familiar with modern requirements in fruit culture would regard grass orchards as presenting the most suitable way of growing fruits in this country, although in the colonies there seems to be vast quantities of superb fruit produced from standard trees on grass. No cultivator would dream of surfacing his orchards with grass, not only because the grass absorbs nutriment from the soil to the disadvantage of the trees, but also because it is impossible to give the trees the benefit of manurial dressings other than chemical manures. I am by no means sure that practical fruit-growers would agree with Mr. Elwes in thinking that further extensive experiments in relation

FERN GROWING IN AN INVERTED BOTTLE.

About seven years ago I substituted bottles for an edging that had been down for about four years. The bottles were of various sorts, and included spirit, wine and pickle bottles. In a number of them Ferns are now growing, and in some cases the plant has nearly filled the bottle. On taking up one of the bottles, I found about an inch of earth had been forced into the neck when driving the bottle in the ground. Growing in this was a specimen with six spikes (fronds). No Ferns have been cultivated near where the bottles were placed. *A. Lissaman.* [The spores of Ferns are extremely small and are easily carried by the wind. Any that happened to be covered by a bottle might well grow and give rise to Fern plants.—EDS.]

lished, reduce the number of shoots to, at the most, three, though when they are very strong two are better. Before the young plants are root-bound, they should be shifted to larger pots, employing a rich soil, and potting firmly. Endeavour to obtain a strong, hard growth, so that the laterals, which will soon begin to push forth, may develop a good system of secondary laterals, these latter giving the plant that feathery or hazy appearance which is so characteristic of the variety. The final shift should be into 9 or 10-inch pots, or even a 12-inch pot. Like all Michaelmas Daisies, this Aster appreciates liberal feeding, and bonemeal or basic slag should be mixed with the potting compost. Liquid manure should be given once or twice a week up to the flowering stage. The plants should be tied to



FIG. 30.—CRAWFURDIA TRAILLIANA GROWING IN THE SALWIN VALLEY, CHINA: FLOWERS, A SHADE OF PURPLE.

ASTER HON. EDITH GIBBS AS A POT PLANT.

—It is not desirable to grow in this manner those varieties which attain 5 or 6 feet in height, and only produce flowers at or near the top. Whilst some of the very dwarf forms, such as *Aster acris* and *Aster Amellus*, make handsome pot plants, the varieties best adapted for this culture are those of a branching habit, producing a profusion of small flowers literally from the ground upwards. The Hon. Edith Gibbs is such a variety. Select an old stool in March, when the new shoots are appearing, and either dig it up and pull it apart, or detach, without lifting it, suitable pieces, with a few roots adhering to each portion. These should be potted up in 3-inch or 5-inch pots, and kept in a frame till they are well rooted, which takes place in three or four weeks. As soon as they are well estab-

lished, prevent the shoots falling over; the single stems should be fastened to one stick, and those with two or three stems to the same number of sticks; in the latter case, instead of inserting them in an upright position, they should be inclined outwards, to form an inverted pyramid. Care should be exercised that the roots do not become unduly dry at any time during the summer, or, as in the case of *Chrysanthemums*, the leaves at the lower part of the stems will shrivel and spoil the appearance of the plants. *Aster Hon. Edith Gibbs* is an early to mid-season variety, the flowers generally opening early in September. If plants are brought indoors when about one-third or one-half of the flowers are open, they will continue in bloom for two or three weeks, but the flowers which develop indoors will be of a paler colour than those in the open. *Alger Petts.*

CRAWFURDIA TRAILLIANA.

THE genus *Crawfordia*, though a small one, deserves more attention than it has received. All the species are twiners; they may be likened to climbing *Gentians*. Possibly, the reason why some of them have not been introduced to cultivation is to be found in the fact that they are not all hardy. Their home is principally in the Himalayas, and the eastern forks of that range which descend into Yunnan and Western Szechuan.

The flowers are axillary, sometimes solitary, but more often produced in fours and fives. They are generally of some shade of purple, with darker folds, or occasionally white, with the folds a shade of green.

The favourite habitat of the plant is a damp and shady spot, in brakes of dwarf Bamboo or amongst very coarse grass. It seldom grows at a greater altitude than 8,000 feet.

The species shown in fig. 30 excels any already known in the number and size of the flowers and in delicacy of colouring. The blooms are fully 3 inches in length, with well-formed, acute, spreading lobes, of a soft shade of heliotrope, deepening to rose colour on the folds. The plants attain a height of 10 feet to 20 feet, and, twining on grass and over masses of scrub, they are very effective.

C. Trailliana is a native of the Salwin Valley, and, though locally extremely abundant, is confined to a stretch of about 40 miles, from 26° 10' to about 27° N., and, curiously enough, only on the western slopes of the valley. There, between the altitudes of 5-7,000 feet, it forms a distinct belt, growing in profusion in company with a dwarf form of *Luculia Pinceana*.

Unfortunately, the Salwin Valley is so enclosed as to make the climate almost subtropical, thus, for the purpose of an out-door garden plant, the species would be useless, but it would form a useful greenhouse climber. *G. Forrest.*

SOCIETIES.**ROYAL HORTICULTURAL.**

JANUARY 11.—The first meeting of the New Year was held on this date. The exhibition was not a large one, but there were several meritorious groups of all sections. The FRUIT AND VEGETABLE COMMITTEE granted a First-class Certificate to Apple William Crump, it having previously received an Award of Merit. A magnificent display of Apples and Pears was awarded a Gold Medal.

The FLORAL COMMITTEE conferred an Award of Merit to *Erlangea tomentosa*; groups of Carnations, Begonias, Zonal Pelargoniums, filmy Ferns, varieties of *Elæagnus*, *Euphorbia pulcherrima*, and early-blooming Alpine plants formed the principal subjects exhibited in this section. The ORCHID COMMITTEE had a considerable number of novelties and groups brought to its notice. One First-class Certificate, two Awards of Merit and one Botanical Certificate were awarded by this committee.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. Henry B. May, E. A. Bowles, Jno. Green, W. J. Bean, G. Reuthe, R. Hooper Pearson, C. Blick, Charles Dixon, Arthur Turner, J. T. Bennett-Poë, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, W. J. James, George Paul, Chas. T. Druery, J. W. Barr, C. R. Fielder, J. F. McLeod, Rev. F. Page Roberts, Chas. E. Pearson, E. T. Cook, Herbert J. Cutbush, and John Jennings.

One of the most attractive exhibits in the hall was a group of *Euphorbia jacquiniæflora* edged with the blue-flowered *Saintpaulia ionantha*. At the ends were batches of *Begonia Gloire de Sceaux* and *Gesnera refulgens*. This exhibit was displayed by the Marquis of SALISBURY, Hatfield (gr. Mr. Prime). We have never seen *Saintpaulia ionantha* shown better at this season of the year, each plant being a perfect little specimen and well flowered, whilst the *Euphorbia* also were fine specimens. (Silver-gilt Banksian Medal.)

Messrs. H. B. MAY & SONS, the Nurseries, Edmonton, staged a selection of choice filmy Ferns, with *Nephrolepis* and other kinds. The filmy Ferns included the elegant *Todea superba*, shown in several grand specimens; and *T. grandipinnula*; *Trichomanes maximum* var. *umbrosum*, with pale green fronds of most charming outline; *T. radicans cambricum*, *T. alabamensis*, the small, crisp fronds being dark green in colour; *T. radicans* var. *luschnathianum pulchrum*; *T. parvulum*, with small, oval leaves; *T. scandens*, *T. costa rica*, the pinnules being broad and flat; *Hymenophyllum asplenoides*, each frond suggesting a piece of bright green seaweed; *Trichomanes trichodeum*, with divisions of the leaf as fine as hair, and *T. reniforme*. The group was made more attractive by decorative *Selaginellas*, and there were also plants of *Platycerium grande*, *Asplenium nobile*, *Drynaria musciformis*, and other greenhouse varieties. (Silver-gilt Banksian Medal.)

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, showed a large group of miscellaneous flowering plants, including well-grown pot specimens of perpetual-blooming Carnations; *Daphne indica rubra*, *Abutilons* Golden Fleece and *rosæflorum*, *Freesia refracta alba*, *Chrysanthemum Genevieve*, a pretty single variety with small, yellow blooms; *Chrysanthemum Golden Age*, a decorative variety of rich yellow shade; *Erlangea tomentosa*, *Moschosma riparium*, very finely flowered; *Acanthus montanus*, and the showy, blue-flowered *Tillandsia Lindenii*. (Silver Flora Medal.)

Carnations of the perpetual-flowering type were well shown by Messrs. W. CUTBUSH & SONS, Highgate, London, N. They had their new, rosy-salmon seedling labelled A4—which we have referred to on a former occasion—in fine condition, and many other unnamed seedlings. Amongst standard sorts were attractive vases of *Rose Doré*, *White Perfection*, *Countess of Onslow*, of heliotrope shade, with pink at the base of the petals; *Carola*, dark crimson; *Afterglow*, cerise; *Aurora*, buff orange, striped with rose-pink; and *Beacon*, scarlet. Messrs. CUTBUSH also showed a selection of Alpines with early-blooming trees and shrubs and berried subjects. Amongst plants in flower were *Crocus alataicus*; the outer segments are greyish, but they are white on the reverse side, and the flower has a prominent yellow centre; *Schizostylis coccinea*; *Hellebores* in variety; *Daphne Mezereum*, both the type and white-flowered kinds; *Iris histrioides*; *I. histrioides major*, of a beautiful blue colour; and *Cyclamen Coum alba*, with almost white flowers. (Silver Flora Medal.)

A charming group of Carnations was displayed by Mr. H. BURNETT, Guernsey, the bright colour of the flowers being very noteworthy. The *Scarlet Britannia* was remarkably fine, also *Alvina*, cerise; *Marmion*, very large blooms and robust stems and leaves, the colour is red with bands of white; *Snow Queen*, the best of the white varieties for winter blooming; *Rose Doré*; *Warrior*, a flaked variety; and *Enchantress*. (Silver Flora Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, also showed Carnations. The flowers were interspersed with Ferns, which made a pleasing contrast. Mrs. Crook is a new variety of Carnation with a red ground marked with deep red spots. The firm also showed a promising white seedling. Older sorts, such as *White Perfection*, *White Enchantress*, and *Afterglow* were represented by choice blooms. The Carnations formed only a portion of this firm's exhibit; they had *Cyclamens* in salmon, red, white, rose and other colours, also some with fimbriated petals; *Daphne indica rubra*, and miscellaneous flowers. (Silver Banksian Medal.)

A batch of well-flowered plants of the new *Primula malacoides* was shown by Messrs. BEES, LTD., Mill Street, Liverpool.

Begonia Patrie was shown by Mr. ARTHUR YOUNG, Oxted Nursery, Surrey. Both small and large plants were densely furnished with the small, rose-coloured blooms.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed bunches of Zonal *Pelargoniums* and plants of *Begonia socotrana*, a showy species with peltate leaves and strong inflorescences, bearing rose-coloured flowers. The *Pelargoniums* included *Chas. H. Curtis*, scarlet; *Jupiter*, a finer scarlet than the last-named and with petals showing greater refinement; *Lord Curzon*, purple magenta; *Taurus*, salmon; *Vesta*, light

scarlet; and *Leonus*, crimson scarlet. (Bronze Flora Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, showed sprays of *Hammamelis arborea* in bloom, over a ground of *Veronica Andersonii* of the silver-leaved type, and, as a floor group, gold and silver varieties of *Elæagnus*.

Messrs. JOHN PEED & SONS, West Norwood, exhibited Alpines. The following were in bloom:—*Daisy Alice*, *Tussilago fragrans*, *Primula* × *Kewensis*, *Saxifraga burseriana major*, species of *Crocus*, *Hellebore*, and *Hepatica*, blue *Primroses*, *Primula denticulata alba*, and *Iris alata*. The group included a collection of succulents in little pots.

Mr. G. REUTHE, Keston, Kent, also showed Alpines and hardy plants, besides a few interesting shrubs. We noticed *Sarracenia purpurea*, *Leucodendron argenteum*, the silver-leaf tree of the Cape; *Garrya elliptica* in bloom; *Crocus caspius*; *Iris Bakeriana*, the segments are light blue and the tip of falls a rich purple; *Iris Danfordiae*, yellow; *Ruscus racemosus*; *Anemone blanda*; *Hepatica angulosa*, very finely in bloom; *Athrotaxis doniana*; and *Galanthus Ikarie*.

Messrs. BARR & SONS, King Street, Covent Garden, showed *Helleborus niger angustifolius*, with extra large blooms; *Helleborus niger Scoticus*, also finely flowered; *Galanthus Elwesii*, *G. Ikarie*, the difference between these being most pronounced in the foliage; *Primula Forbesii*, *Roman Hyacinths*, *Lachenalias*, and *Iris unguicularis*, of a delicate lavender-blue shade.

The Misses HOPKINS, Shepperton, showed a small rock-garden exhibit planted with *Hellebores* and blue-flowered *Primroses*.

AWARD OF MERIT.

Erlangea tomentosa.—Messrs. JAMES VEITCH & SONS, LTD., received an Award of Merit for a species of *Erlangea* introduced from British East India a year or two since. In general habit the plant greatly resembles the *Eupatoriums*, the bright, mauve-coloured flowers being produced in much the same manner as in that genus. *Erlangea tomentosa* is a good winter-blooming plant, and it may be cultivated with ease in a cool greenhouse or frame.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Sir Jeremiah Colman, Bart., de B. Crawshaw, W. Boxall, J. Wilson Potter, J. F. Alcock, F. J. Hanbury, F. Menteth Ogilvie, A. A. McBean, W. Cobb, C. H. Curtis, J. Charlesworth, J. Cypher, H. G. Alexander, A. Dye, W. H. Hatcher, W. P. Bound, W. H. White, H. A. Tracy, H. Ballantine, and Gurney Wilson.

H. S. GOODSON, Esq., Fairlawn, West Hill, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for a fine group consisting principally of rare and handsome *Odontoglossums*. There were several finely-blotched varieties of *O. crispum*, the best being *O. crispum Edwardii* and *O. c. Princess*, both distinctly blotched with mauve-purple. The white forms included one very handsome variety. The hybrids included a distinct form of *O. Lambaeanum*, the flowers being profusely dotted with dark purple. We also noticed *O. Wiganianum* Goodson's variety, a finely-shaped chrome-yellow bloom spotted with chocolate-purple; good forms of *O. amabile*, *O. loochristiense* and *O. eximium* Goodson's variety, a large, broad-petalled flower heavily blotched with red-brown. The group was the more noteworthy as the plants had been grown in the London district.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a large and interesting group of hybrid *Cypripediums*, a considerable number being seedlings raised from *C. villosum giganteum* and *C. Euryades*. Scarcely two of the plants bore similar flowers, the extreme forms being very unlike; some had the white dorsal sepal spotted with claret colour, while others had the greater portion of the dorsal sepal of a purplish-rose tint, the upper part being white. Another interesting exhibit shown by this firm consisted of several plants of *Cypripedium Little Gem*, in which the lower sepals are more or less coloured like the dorsal one. *C. Actæus* Langleyense was presented in good form, together with other varieties of *C. Actæus*, the best of which was the new *C. A. Sybil*, a finely-

formed and pretty flower. Some promising unnamed hybrids were arranged with *Odontoglossum crispum*, *Brasso-Cattleya Pyrrha*, and *B.-C. Orpheus*.

Messrs. CHARLESWORTH & Co., Hayward's Heath, were awarded a Silver Flora Medal for a group, in which hybrid *Calanthes*, including the pure white *C. Veitchii alba*, were finely displayed. Many graceful sprays of rose, white and pink flowers, with purple and rose blotches on the lip, were very effective. In the middle of the group were good forms of white and coloured *Lælia anceps* and *Odontoglossums*, amongst which were several new seedlings, the blotched forms of *O. ardentissimum*, and the little blotched *O. crispum*, flowering for the first time, being specially good. Amongst the *Cypripediums* were *C. Minos Youngii*, and a very handsome new hybrid from *C. insigne* Harefield Hall and *C. Niobe*, named *C. Priam* Charlesworth's variety; the flowers were finely shaped and of good colour. At the back of the exhibits were arranged the violet *Odontoglossum Edwardii* with three flower-spikes and the bright scarlet *Odontodia Keighleyensis*.

ED. ROGERSON, Esq., West Didsbury, Manchester (gr. Mr. W. C. Price), was awarded a Silver Banksian Medal for an excellent group of *Cypripediums*, which included rare and new varieties. *C. Rogersonianum* is a singular and pretty hybrid of *C. Chamberlainianum*; *C. insigne albidum* has a very distinct form, with a peculiar greenish ground colour and a good display of white in the upper part of its well-rounded dorsal sepal. *C. Troilus* was shown in several varieties; *C. Memoria Lord Burton* (*Sallieri Hyeum* × *Lathamianum*) is an attractive and distinct variety. *C. Leeanum Clinkaberryanum*, *C. Hindeanum*, *C. Zeus*, varieties of *C. Edippe*, *C. Ceres Fascinator* and other fine *Cypripediums*, also the new *Odontoglossum W. C. Price*, a well-formed white flower blotched with rosy-mauve, were also noted.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, were awarded a Silver Banksian Medal for a group containing many fine species. Notable examples included a large specimen of the rare *Dendrobium triflorum* with nine spikes of elegant white flowers; *Epidendrum Cooperianum*, with three long racemes of rose-lipped flowers; *Lælia anceps Chamberlainiana*, still one of the best and largest forms of this beautiful Orchid; *Cypripedium Alcibiades superbum*, a charming flower; *C. Helen II.* var. *Armstrongiae*, a cream-white, wax-like flower with a few blackish dots; *C. Curte-manni magnificum*, a grand flower resembling in shape and colouring *C. Beekmanni*; the white and fragrant *Brasso-Cattleya Pocahontas*, the singular *Bulbophyllum lemniscatoides*, with a drooping, tassel-like inflorescence; the clear yellow *Oncidium varicosum concolor*; *Grobysa galeata*, and the spotted form of *Cirrhopetalum Meduse*.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for an attractive group, in which a dozen plants of a fine form of *Cypripedium insigne*, with very large blackish-chocolate blotches on the dorsal sepal, which was pure white at the tip, formed a conspicuous feature. Other remarkable plants noted were *Cypripedium Minos Youngii*, *C. nitens* G. S. Ball, *C. aureum Hyeum*, and the fine reddish-violet *Odontoglossum Groganiamum*.

Messrs. JAS. CYPHER & SONS, Cheltenham, were awarded a Silver Banksian Medal for a group of choice *Cypripediums*. The more noteworthy were *C. Charlesianum* Cypher's variety, a very large and showy flower; *C. Alcibiades*, *C. G. F. Moore*, varieties of *C. Niobe*, *C. Thompsonii*, *C. Fascinator*, *C. Mrs. Mostyn*, *C. Leopoldianum*, *C. corona*, and *C. Amy Moore*, and other beautiful hybrids.

Mr. E. V. Low, Vale Bridge Nurseries, Haywards Heath, was awarded a Silver Banksian Medal for a neat group of exceptionally well-grown Orchids, amongst which were forms of *Cattleya Triane*, and especially of the white variety; *C. T. A. J. Balfour* is a perfect flower, with white sepals and petals, having a pearly-pink flush and a purplish-crimson front to the lip; *Cypripedium Ville de Paris*, *C. Minos Youngii*, *C. aureum Surprise*, *Cymbidium longifolium*, *C. Wiganianum*, *Odontoglossum venustum* Apollo, and the bright-reddish orange *Lælio-Cattleya Charlesworthii* were also shown.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatten Park (gr. Mr. Collier), staged a small group of interesting Orchids, all well flowered. We

noticed a pretty little Javan *Liparis* of the *L. longipes* section, but with a deep red labellum to the flowers; *Dendrobium Johannis*, with seven spikes of bronzy-purple flowers with yellow lip; *Masdevallia Schröderiana*, with about 25 pretty white and mauve flowers; a selection of cut spikes of fine forms of *Lælia anceps*, and the two new hybrids *Lælio-Cattleya Eleanor* (*L. anceps* × *L.-C. Charlesworthii*), which resembles closely a good variety of *L. anceps* in form and colour, although the influence of *L.-C. Charlesworthii* is shown slightly in the lip. *Sophræ-Lælio-Cattleya Mary* (*S. grandiflora* × *L.-C. Helena*), is a pretty magenta-rose flower with a curiously-constricted middle to the lip.

Mrs. COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed *Cypripedium Chapmaniæ* (*Fairrieanum* × *Calypso*), a pretty ivory-white flower with purple and green lines on the dorsal sepal and petals; *C. hirsuto-Leeanum*, and *C. Haroldianum* (*hirsutissimum* × *insigne* Harefield Hall).

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cypripedium Wellesleyæ* (*Venus* × *insigne* Harefield Hall), a fine, bold, cream-white flower of wax-like texture, with a slight rose tint and with dark-purple spotting on the petals and dorsal sepal. The staminate and lip are pale yellow, the latter being slightly tinged with purple; and *Cypripedium Leeannum* His Majesty, the large dorsal sepal of which was white, having numerous confluent dotted lines of rose-purple. The petals and lip are honey-yellow, tinged with purple, the petals bearing some dark spots.

Mr. H. A. TRACY, Twickenham, showed *Cypripedium Phillipsii*, a singular yellow flower with chocolate markings.

F. MENTEITH OGILVIE, Esq. (gr. Mr. Balmforth), exhibited *Cypripedium Antigone inversa* with white flowers marked with rose-purple.

Messrs. WM. BULL & SONS, Chelsea, showed a small plant of *Odontoglossum crispum* Flora, a finely-blotched seedling; and *Cypripedium Hobartii magnificum* (*Lathamianum* × *insigne* Harefield Hall), an attractive and finely-formed flower.

Messrs. STANLEY & Co., Southgate, showed *Cypripedium Gisela von Bülow* (*Euryades* × *Beekmannii*), a beautiful flower with a large, white dorsal sepal spotted with purple, the broad petals and lip indicating the parentage of *C. Beekmannii* strongly; and *C. Leeannum punctatissimum* with numerous fine rose spots on the dorsal sepal.

Mons. MERTENS, Ghent, showed several hybrid *Odontoglossums*, also *Miltonia vexillaria Leopoldii*, *Cypripedium Germaine Opoix* Westfield variety, and *C. Lathamianum Imperator*.

J. S. MOSS, Esq., Wintershill Hall, Bishop's Waltham, showed flowers of *Odontoglossum Hilda* (*Coradinei* *Crawshayanum* × *Pescatorei*). The blooms are white, spotted with purple.

AWARDS.

FIRST-CLASS CERTIFICATE.

Lycastris Skinneri armeniacæ, from FERGES MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).—A charming variety, introduced some years ago, but never before shown in such fine condition. The large flowers have very broad, flat, clear white sepals; the petals also are white and delicately tinged with apricot-yellow; the white labellum is marked with a darker tint of the same colour, the whole flower being very chaste and beautiful.

AWARDS OF MERIT.

Cypripedium Atlas (*C. Fascinator* × *C. insigne* Harefield Hall), from Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander).—A grand flower, with the small base of the large white dorsal sepal Indian yellow, the middle area being evenly spotted with dark purple. The petals are broad with wavy margins, honey yellow tinged with purple, and bearing dark spots; the lip is yellow, tinged with purple.

Cypripedium Bantam (*C. Sallieri Hyacinum* × *C. Euryades*), from Lieut.-Col. HOLFORD.—A remarkable hybrid, with the greater portion of the dorsal sepal of a shining, deep chocolate purple, the upper part being white. Petals and lip yellow, tinged with red-brown.

BOTANICAL CERTIFICATE.

Phaius Cooperi, from Messrs. SANDER & SONS, St. Albans.—A very singular species of the

growth of *Phaius grandifolius*. The stout, upright spikes bore a dozen or more flowers, equal in size to those of *P. grandifolius*. The upper sepal and petals are erect, the lateral sepals extended. All the segments are reddish-brown, tipped with yellow. Lip tubular and continued into a thin spur; white, marked with rose in the tube, the front being fringed. The native country was not recorded.

CULTURAL COMMENDATION

to Mr. W. H. White, Orchid grower to Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford, for three strong spikes of *Habenaria ugande* from a plant over 4 feet in height.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the Chair), and Messrs. Jas. Cheal, W. Bates, Edw. Beckett, Alex. Dean, H. Parr, Jas. Vert, A. R. Allan, G. Hobday, J. Davis, John Lyne, Geo. Reynolds, P. D. Tuckett, J. Jaques, William Crump, Chas. Foster, Geo. Wythes, and Owen Thomas.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, showed a magnificent exhibit of Apples and Pears. In all, there were 172 dishes, including 27 of Pears. The fruits were plump and generally well preserved, but not so bright in colour as in some seasons. Notable dishes of Apples were King of Tompkins County, Reinette de Canada, Birmarck, Baumann's Red Reinette, White Calville, Adams's Pearmain, Sandringham, Rival, Lord Derby, Emperor Alexander, Christmas Pearmain, Royal Late Cooking, Dutch Mignonne, Stone's or Loddington, and Blenheim Pippin. The Pears included Doyenné d'Alençon, Danas' Hovey, Olivier de Serres, Marie Benoist, Beurré Alexander Lucas, Vicar of Winkfield, Blickling, Easter Beurré, and President Barabé. There were also some fine specimens of French-grown Pears. (Gold Medal.)

F. BIBBY, Esq., Hardwicke Grange, Shrewsbury (gr. Mr. J. Taylor), showed eight varieties of Pears, viz., Olivier de Serres, Nec Plus Meuris, Glou Morceau, Beurré Rance, Bergamotte Esperen, Napoleon, President Barabé, and Easter Beurré. (Silver Banksian Medal.)

Amongst several seedling Apples submitted for award was one shown by Messrs. LAXTON BROS., Bedford, and named Bedford Pippin. The flavour was remarkably good, the parents being Alington Pippin and Cox's Orange Pippin. It met with approval, but no award was made, as the Committee required particulars of the tree's cropping qualities, &c.

FIRST-CLASS CERTIFICATE.

Apple William Crump.—This finely-flavoured dessert Apple, which was granted an Award of Merit at the meeting held on December 22, 1908, was, on this occasion, awarded a First-class Certificate. It was raised by Mr. William Crump, of Madresfield Court Gardens, Malvern, from Cox's Orange Pippin and Worcester Pearmain. The fruits generally resemble the first-named parent, and partake largely of the flavour of that excellent Apple. The variety was figured in our issue for January 9, 1909, page 21. Shown by Mr. CRUMP.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. GEO. MORREY, for nearly 4 years Plant Foreman at Tatton Park Gardens, Knutsford, Cheshire, as Gardener to Messrs. JENNISON & Co., Zoological Gardens, Belle Vue, Manchester.

Mr. GEORGE ANDERSON, for the past 5 years General Foreman at Mauldslee Castle, Carlisle, Lanarkshire, as Gardener to the Rt. Hon. A. J. BALFOUR, Whittinghame, East Lothian, Scotland.

Mr. JAMES SLEIGH, for the past 12 months at Mauldslee Castle, Carlisle, and previously for two years at Windsor Castle Gardens, as Gardener to Lady EVA WYNDHAM QUIN, Castletown, Carrick-on-Suir, Ireland.

Mr. H. A. FULFORD, for the past 2 years Foreman at Stansted Park Gardens, Emsworth, as Gardener to F. W. GODDING, Esq., Hanworth House, Hanworth, Middlesex, in succession to his late father. (Thanks for 2s. for R.G.O.F. box.)

Mr. H. T. STOWE, previously 2 years Gardener to V. DE C. HUGHES, Esq., Greetown House, Kildare, as Gardener to the Trustees of ANDREW MONTAGU, Esq., Papplewick Hall, Linby, Nottingham.

DEBATING SOCIETIES.

CHESTER PAXTON.—The chairman of committees, Mr. A. W. Armstrong, invited the officers and members of the executive and district committees of this society to dinner at the Blossoms Hotel on Saturday, January 8. The company numbered 96. After the loyal toast had been submitted by Mr. Armstrong, Mr. N. F. Barnes, Eaton Gardens, proposed "Success to the Chester Paxton Society." Mr. Barnes referred to the work that the society had done during the 21 years it had existed. Mr. J. Weaver and Mr. J. Wynne responded. The chairman's health was proposed by Mr. R. Wakefield; he thanked Mr. Armstrong for the work he had done for the society. The health of the hon. secretary was proposed by Mr. R. Newstead, who said he had known Mr. Mlin for upwards of 20 years, and the success he had achieved during that time in whatever work he had undertaken (including the secretaryship of the Paxton society), proved him to be a first-rate organiser and administrator.

CROYDON & DISTRICT HORTICULTURAL.—The 10th annual report shows the society to be in a flourishing condition. The meetings have been well attended, and much useful information has been gained from the various lectures and debates. Many interesting exhibits have been forthcoming at these gatherings, the number of exhibitors exceeding those of previous years. The annual dinner was well attended, 85 being present. The spring flower show held on May 6, attracted a large number of visitors: it is interesting to note that all of the exhibits were honorary. The annual outing and the evening visits to gardens during the summer were well attended. The society possesses a microscope, and money is being collected to purchase a lantern for use at the meetings. The Royal Gardeners' Orphan Fund has been sent £1 10s. as the result of collections at the meetings. The balance-sheet shows the total receipts for the year, including a small balance from 1908, to have been £71 6s. 6d. The 10th annual dinner will be held at the Greyhound Hotel, at Croydon, on Wednesday, February 7.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 8, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—As a rule the conditions were very mild and dull, and also dry, rain seldom falling except along the Atlantic seaboard and in the extreme north of Scotland, the amount being mostly slight. Fog and mist were very prevalent on various parts of the coast during the earlier half of the period. Thunder and lightning occurred in many parts of Scotland and at Markree Castle on Saturday. Aurora was seen at Gordon Castle and Crathes on Wednesday evening, and at the former station lightning was also observed.

The temperature was above the average. In Scotland E. the excess was nearly 8°, in Scotland W. 7°, and in Scotland N. and Ireland N. about 6°. The difference from the normal was large in nearly all other districts, but slight in the English Channel. The highest of the maxima occurred on the 2nd at almost every station, and ranged from 57° in several localities in the eastern half of Britain and 56° in Ireland S. to 53° in England S.W., and to 52° in the English Channel. The lowest of the minima, which were recorded on rather irregular dates, mostly late in the week, ranged from 29° in Scotland E., to 33° in Scotland N., England E., and over Ireland, and to 34° in the English Channel. The lowest grass readings reported were 19° at Crathes and Sheffield, 23° at Cambridge, 24° at Dublin, and 25° at West Linton.

The mean temperature of the sea.—On most parts of the coast the water was colder than during the corresponding week of last year, but in some localities it was warmer—nearly 4° at Margate and 5° at Aberdeen. The means for the week ranged from about 48° on the south-west coasts of England and at Port Erin and Seafield to 43° or less along the east and north-east coasts of Britain generally, and to 41° at Berwick.

The rain/fall was much less than the average in all districts except Scotland N., where there was a considerable excess. In England E., N.E., S.E. and the English Channel the fall was less than 0.1 inch. At some stations in the west of Scotland more than an inch of rain was experienced on Saturday.

The bright sunshine was below the average generally, but above it in Scotland N. and E. The percentage of the possible duration ranged from 21 in Scotland E., 15 in Ireland S., and 13 in Scotland N., to only 4 in England S.E. and Scotland W. In the English Channel only Scilly registered a little sunshine.

THE WEATHER IN WEST HERTS.

Week ending January 12.

The third warm week in succession.—Since the year began there have been only two cold days and no cold nights. On two days during the past week the temperature in the thermometer screen rose to 52°, which is about 10° warmer than the average maximum for January. The ground is still warm for the time of year, being 8° warmer than is seasonable, both at 1 and 2 feet deep. Rain fell on three days, but only to the total depth of about a quarter of an inch. During the evening of the 11th the ground was, for a short time, covered with snow, but rain fell directly afterwards. There is still a little percolation through the soil gauges, but the amounts have been, until to-day, very small. The sun shone on an average for 1½ hours a day, which is a quarter of an hour a day short of the usual duration at this period in January. The first five days of the week were altogether sunless. The winds have been, as a rule, high, but in no hour did the mean velocity exceed 18 miles—direction W.S.W. During the present month there has been as yet no wind from any northerly point of the compass. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by five per cent. E. M., Berkhamsted, January 12, 1910.

Obituary.

ROBERT TODD.—We regret to record the death of Mr. R. Todd, which took place suddenly on the 2nd inst., at his residence, Westmount Road, Eltham, Kent, to which place he removed only a few months ago on his retirement from the charge of Woolton Wood Gardens. Mr. Todd commenced his gardening career at Dalkeith, and later became fruit foreman at Alnwick Castle. After spending six years there he was appointed gardener to A. B. Stewart, Esq., at Rawcliffe, Glasgow, and later served as gardener at Avoig Hall, Bute, for 13 years. Whilst at the former place, Mr. Todd made himself a name as an exhibitor at the leading shows in Scotland, his exhibits including plants, filmy and exotic Ferns and fruit. On the death of his employer, Mr. Todd filled the position of Superintendent of Grounds of the Edinburgh Exhibition (1886), after which he was appointed head gardener to Holbrook Gaskell, Esq., J.P., Woolton Wood, Liverpool. Woolton Wood in the 'eighties was famous for its collection of Orchids, its cool fernery and hardy fruits, which were well cared for during Mr. Todd's supervision of 21 years. Deceased rendered great help in the formation and management of the Woolton Gardeners' Mutual Improvement Society. He was an enthusiastic supporter of the Gardeners' Royal Benevolent Institution, and a member of the committee of the Liverpool Auxiliary from its inception. A widow, two sons, and two daughters are left to mourn the loss of one who endeared himself to those with whom he came into contact.

DR. MAURITZ GRESHOFF. Botanical science has to deplore the death of Dr. Mauritz Greshoff, director and chemist of the Colonial Museum of Haarlem. Dr. Greshoff, who was only 47 years of age, gained a wide reputation by his investigations in plant-chemistry, and particularly into the distribution of hydrocyanic acid among plants. He published recently, in collaboration with Dr. Treub, of Buitenzorg, an important paper on the occurrence and significance of hydrocyanic acid in Pinguicula edule, in which memoir evidence was given that this simple nitrogen-containing substance represents the first step in the synthesis of proteins from inorganic nitrogen-containing salts, e.g., nitrates. Returning to Europe, owing to a breakdown in health, Dr. Greshoff was appointed first, chemist, and later, director of the Colonial Museum. Beside his official duties, he found time to continue his scientific investigations, both in Holland and at Kew, and to advise agriculturists and business men on matters concerning the chemistry of plants, particularly of those of the tropics. Dr. Greshoff's death leaves a gap in the ranks of scientific workers which will long remain unfilled.

WILLIAM HADDON BEEBY.—British botany has sustained a loss by the death of William Haddon Beeby, F.L.S., who died suddenly after a short illness at his home at Thames Ditton on the 4th inst., age 60. Mr. Beeby had an excellent critical knowledge of the British flora, and was especially interested in the plants of Surrey. He worked for a long time towards the production of a Flora of that county.

MR. EDWARD T. CONNOLD.—Mr. Edward T. Connold, the author of *British Vegetable Galls*, died at Hastings on January 9. Mr. Connold, who was 47 years of age, was a keen entomologist, took a great interest in the local natural history society, and his work on *Vegetable Galls* is a valuable contribution to the advancement of science.

CATALOGUES RECEIVED.

SEEDS.

HOWDEN & Co., Old Post Office Buildings, Inverness.
THOS. DAVIES & Co., Wavertree, Liverpool.
TILLEY BROS., 133, London Road, Brighton.
CHAS. W. BREADMORE, 120, High Street, Winchester, Hampshire.
WM. FILL & Co., Hoxham, Northumberland.
JOHN McKECHER, 35, Giesbach Road, Upper Holloway, London, N.
JOHN JEFFERIES & SON, LTD., Market Place, Cirencester.
WM. THOMPSON & Co., LTD., Londonderry.
WM. SAMSON & Co., Kilmarnock.
CHARLES TURNER, The Royal Nurseries, Slough.
H. CANNELL & SONS, Swanley, Kent.

MARKETS.

COVENT GARDEN, January 12.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia longifolia, p. dz. bunches	9 0 12 0	Lily of the Valley, extra quality	12 0 15 0
— de alibata (minosa), per doz. bunches	9 0 12 0	— long white and yellow	3 0 4 0
Azalea, Queen, per bunch	1 0 1 6	Mignonette, per dozen bunches	2 0 3 0
— Fie d'et, per doz.	4 0 6 0	Narcissus Paper White, per doz. bunches	2 0 3 0
Bouvardia	4 0 6 0	— Small d'Or	3 0 4 0
Carnations, p. doz. blooms, best	3 0 4 0	— d'Or to golden	2 0 2 6
— second size	1 6 2 0	— crispum, per dozen blooms	2 0 2 6
— smaller, per doz. bunches	12 0 18 0	Pearl anemones, show, per doz. bunches	4 0 6 0
Camellias, per doz. blooms	12 0 14 0	— Zonal, double scarlet	6 0 8 0
Daffodils, per doz. bunches	8 0 10 0	— Richfield americana (Calla), p. doz.	2 0 3 6
— double, per doz. bunches	8 0 10 0	Roses, 12 blooms, 2 places	1 6 2 6
Eucalyptus grandifolia, per dozen blooms	4 0 6 0	— 1 place and 2	2 0 3 0
Gardenias, per doz. flowers	3 0 4 0	— C. testata	3 0 4 0
Heather (white), per bunch	0 4 0 6	— Kilmartin A	2 0 4 0
Hyacinths, Roman, per doz. bchs.	9 0 12 0	— C. deinet	3 0 4 0
Lapageria, per dozen blooms	2 0 3 0	— Liberty	1 0 8 0
Lilac (French), bch.	4 0 5 0	— Mme Chateaux	3 0 6 0
Lilium auratum, per bunch	2 0 3 6	— Mrs. J. Lang	2 0 4 0
— longiflorum	2 0 3 6	— Richmond	3 0 4 0
— lanciflorum	1 6 2 6	— The Bride	4 0 5 0
— aurum	2 0 2 6	Spiraea, p. dz. bchs.	2 0 4 0
Lily of the Valley, p. dz. bunches	8 0 10 0	Statice, p. dz. bchs.	3 0 4 0
		Tuberose, per doz. blooms	0 3 0 4
		Violets, per dozen bunches	2 0 3 0
		— Parma	4 0 5 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum canescens, per dozen bunches	6 0 9 0	Grasses (hardy), dozen bunches	1 0 3 0
Asparagus plumosus, long trails, per doz.	8 0 12 0	Hardy foliage (various), per dozen bunches	3 0 9 0
— medium, doz.	12 0 18 0	Ivy-leaves, bronze	2 0 2 6
— Sprenger	0 9 1 6	— long trails per bundle	0 9 1 6
Berberis, per dozen bunches	2 6 3 0	— short green, per doz. bunches	1 6 2 6
Croton leaves, per bunch	9 0 12 0	Moss, per gross	4 0 5 0
Cycas leaves, each	1 0 2 0	Myrtle, p. dz. belis. (E. de la S.)	4 0 6 0
Ferns, per dozen bunches (English)	2 0 3 0	— French	1 0 1 6
— (French)	0 6 0 9	Oak foliage, per doz. bunches	12 0 15 0
Galax leaves, per doz. bunches	2 0 2 6	Smilax, per dozen trails	6 0 8 0
		Vine leaves, per doz. bunches	1 0 1 6

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemopsis Veitchii, per dozen	6 0 8 0	Cyperus alternifolius, dozen	4 0 5 0
Aralia Sieboldii, p. dozen	4 0 6 0	— laxus, per doz.	4 0 5 0
— larger specimens	9 0 12 0	Daffodils, per doz.	6 0 8 0
— Moser	4 0 6 0	Dracæna, per doz.	9 0 24 0
— larger	12 0 18 0	Erica gracilis nivalis, per doz.	10 0 15 0
Araucaria excelsa, per dozen	12 0 30 0	— hyemalis	9 0 15 0
— large plants, each	3 6 5 0	— small plants	8 0 5 0
Aspidistras, p. dz., green	15 0 24 0	Euonymus, per dz., in pots	3 0 8 0
— variegated	30 0 42 0	— from the ground	3 0 6 0
Asparagus plumosus nanus, per dozen	9 0 15 0	Ferns, in thumbs, per 100	8 0 12 0
— Sprenger	9 0 12 0	— in small and large 60's	12 0 20 0
— tenuissimus	9 0 12 0	— in 48's, per dozen	4 0 6 0
Azaleas, per doz.	30 0 42 0	— choicer sorts	8 0 12 0
Begonia Gloire de de Lorraine, p. dozen	12 0 18 0	— in 32's, per dozen	10 0 18 0
Bouvardias, per dozen	5 0 8 0	Ficus elastica, doz.	8 0 10 0
Chrysanthemums, per doz.	8 0 12 0	— repens, per dz.	6 0 8 0
— special plants	18 0 30 0	Genistas, per dz.	10 0 12 0
Cinerarias, per dozen	6 0 12 0	Greivellias, per dz.	4 0 6 0
Clematis, per doz.	8 0 9 0	Hyacinths, per dz. pots, 3 in a pot	9 0 12 0
Cocos Weddelliana, per dozen	18 0 30 0	Isolepis, per dozen	4 0 6 0
Crotons, per dozen	18 0 30 0	Kentia Belmoreana, per dozen	15 0 24 0
Cyclamen, per doz.	8 0 12 0	— Fosteriana, per dozen	18 0 30 0
		Latania borbonica, per dozen	15 0 21 0
		Lilium longiflorum, per dz.	18 0 30 0

Plants in Pots, &c.: Average Wholesale Prices.	s.d. s.d.		s.d. s.d.
Lilium lancifolium, per doz.	18 0 30 0	Poinsettias, p. doz.	9 0 14 0
Lily of the Valley, per dozen	18 0 30 0	Sagittaria, p. doz.	4 0 6 0
Marguerites, white, per dozen	6 0 9 0	Solanums, per doz.	6 0 10 0
Mignonette, per dz.	6 0 8 0	— sp. 14, nuda, per dozen	6 0 9 0
		Tulips in boxes of 24 bulbs	1 6 2 0

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples Newtown (U.S.), per barrel	18 0 25 0	Grapefruit, per lb.	1 6 2 6
— (Nova Scotian), per barrel	15 0 17 0	— American, per box	14 0 21 0
— Ribston Pippin	15 0 17 0	Lemons, box	9 0 11 0
— Blenheim Pippin	16 0 17 0	— Palermo, 300	9 0 11 6
— King of the Pippins	15 0 18 0	— (Naples), case	14 0 18 0
— (English), per bushel	4 6 6 0	Limes, per case	3 0 —
— Peasgood's Nonesuch	4 6 6 0	Lychées, per box	1 6 1 9
— Annie Elizabeth, p. bushel	5 0 6 0	Nuts, Almonds, p. bag	96 0 40 0
— Allington Pippin	3 0 4 6	— Brazils, new, per cwt.	32 0 36 0
— Bramley's Seedling	4 0 6 0	— Bangoes, bag	32 0 34 0
— Dumelow's Seedling (Wellington)	3 6 5 0	— Cob, per box	0 3 0 3
— Lane's Prince Albert	4 0 5 6	— Coconuts, 100	10 0 14 0
— Queen	3 6 4 6	— Walnuts (French), per bag	5 0 6 0
— Warner's King	4 0 1 6	— Chestnuts (Kiddor), per bag	6 0 7 0
— Blenheim Orange	3 6 5 0	— (Italian), p. bag	16 0 17 0
— Lord Derby	3 6 4 6	Oranges	
— Cox's Orange Pippin, p. sieve	5 0 8 0	— Californian	
— Newtown Pippin, per case	11 6 15 0	— Navel, per box	11 0 12 0
— Oregon	9 0 11 6	— Lathas, per box	7 0 8 6
— Californian	9 0 11 6	— Doria, per case (420)	10 0 14 0
— British Columbia	12 0 18 0	— Valencia, per case (420)	8 6 12 0
Avocado Pears	5 0 10 0	— (Almaria), case	10 0 13 0
bananas, bunch	5 6 6 0	— Jamaica, per case (176)	9 0 10 0
— Doubles	5 6 6 0	— (200)	9 0 9 6
— No 1	5 6 6 0	— Mandarin, per box	0 7 0 10
— Extra	7 0 8 0	— Tangerine, per box	0 9 1 0
— Giant	9 0 11 0	Pomegranates, per case	6 6 7 6
— Red coloured	4 6 6 0	— per box	2 3 2 6
— Red Doubles	8 0 9 0	Pears (Californian)	
— Jamaica	5 0 5 6	— Doyenne du Comice, p. box	10 0 12 0
— Late per dz.	0 6 1 0	— Oregon Winter Nels, per case	14 0 17 0
Cranberries, case	6 0 8 0	— Easter Beurre, per case	8 0 10 0
Custard Apples	4 0 6 0	— Catilacs (Dutch), per basket	2 0 2 3
Grape Fruit, case	8 0 11 0	— Persimmons, box (12)	1 0 —
Grapes, per lb.	0 9 1 3	Pineapples, each	2 0 5 0
— Gros Colman	0 5 1 0	— (Native), per dz.	4 0 6 0
— English Hambro	0 5 1 0		
— Alicante	0 3 1 0		
— Muscat of Alexandria	0 10 2 0		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	1 9 2 0	Mushrooms, per lb.	0 6 8 0
Asparagus, Paris Green, bundle	4 6 5 0	— broilers	0 5 6 0
— Sprue, bundle	0 9 10 0	Mustard and Cress, per dozen pun.	1 0 —
Beans (French), boxes	1 0 1 3	Onions (Lisbons), per box	6 6 7 6
— Madeira, per basket	3 0 5 0	— (Dutch), p. bag	3 6 4 6
Beetroot, per bushel	1 6 2 3	— pickling, per bushel	3 0 4 0
Cabbages, p. tally	4 6 6 0	— Valencia, per case	6 6 7 6
Cardoons (French), per dozen	8 0 10 0	Parsley, ½ sieve	3 0 —
Carrots (English), dozen bunches	3 0 3 6	Potatoes (English), per bag	2 6 4 6
— per bag	2 9 3 0	Rhubarb (forced), doz. bundles	0 10 0 11
— unwashed	2 0 2 6	Radishes (French), per doz. bunches	1 3 1 6
Cauliflowers, tally	5 0 5 6	Seakale, per dozen punnets	9 0 15 0
Celeriac, per doz.	1 6 2 6	Spinach, ½ sieve	2 3 2 9
Chicory, per lb.	0 3 0 3	Stachys tuberosa, per lb.	0 3 1 —
Cucumbers, p. doz.	8 0 9 0	T. m. to s.	
Endive, per dozen	1 3 1 9	— Teneriffe, per package	10 0 14 0
Horseradish, foreign, new, per bundle	1 0 1 1	Turnips, bag	2 0 3 0
Leeks, 12 bundles	1 6 —	Watercress, p. flat	4 0 6 6
Lettuces (French), per dozen	0 8 1 0		

REMARKS.—The quality of the Oranges now arriving is slightly better, but the demand is not good. Many Apples in barrels are inferior, and good quality fruits are realising satisfactory prices. Grape fruits are very fine, especially those from Florida. Californian Navel Oranges are obtainable. Trade in Rhubarb remains quiet. Apricots, Plums, Pears, and Peaches have been received from the Cape (much larger consignments are expected next week), Russian Pears are still arriving, the demand being moderate. Vegetables are a little firmer in price. Trade generally is quiet. E. H. R., Covent Garden, Wednesday, January 12, 1910.

	per cwt.		per cwt.
Bedfords	s.d. s.d.	Lincolns	s.d. s.d.
Up-to-Date	3 3 3 6	Up-to-Date	3 3 3 6
Blacklands	2 6 2 9	British Queen	3 3 3 6
Dunbars	5 9 6 0	Royal Kidney	2 9 3 0
Mancrop	4 6 5 0	Maincrop	1 0 1 4
Up-to-Date	4 6 5 0	Kents	
Lincolns		King Edward	3 0 3 6
Epicure	2 9 3 0	Sharpe's Express	3 0 3 6
Evergood	2 6 3 0	May Queen	3 0 3 6
Sharpe's Express	3 0 3 3	Up-to-Date	3 3 3 6

REMARKS.—There is a slight improvement in trade, but prices remain about the same. Stocks in London are not quite so heavy as they were a few weeks ago. Edward J. Newbery, Covent Garden and St. Pancras, January 12, 1910.

COVENT GARDEN FLOWER MARKET.

There is no great improvement in trade generally, but prices vary considerably. Daffodils and other early garden flowers have made their appearance. There are also many hardy flower roots, shrubs, climbers, Roses, and fruit trees.

POT PLANTS.

There has been only a moderate trade during the past week. Yesterday (Tuesday), I noticed many good Chrysanthemum plants were not sold; the growers apparently ask higher prices than retailers can afford to give for them. *Ericas* are well flowered, *E. melanthera* is specially good both in the bushy dwarf plants and the taller pyramidal specimens. *E. hyemalis* varies, some of the plants are not well flowered but generally they are good. Cyclamen seem to have been of moderate quality only, this may be accounted for by most of the best flowered plants being sent direct to the retail florists. *Begonia Gloire de Lorraine* has been very good, some growers have nearly finished with this plant for the season. I noted a few fairly good *Genistas*, but they are not so well flowered as we shall see them later on. *Poinsettias* have not been up to the usual standard this year, but they are still coming into the market. The growers do not attach sufficient importance to the obtaining of strong cuttings; it is impossible to obtain large heads of bracts on thin stems, and it is only by giving early attention to the stock plants that success in this direction can be obtained. Daffodils have been plentiful, those in pots have not sold well. In some cases it has paid better to cut the flowers and foliage and sell them in that way. *Azaleas* of best quality have not been extra plentiful. *Mignonette* is not very good, but the plants will improve with a little more sunshine. Some *Liliums* are procurable, but they would not travel well unless very carefully packed, for the growth is rather soft. Tulips in boxes are over abundant, *Spiraea astilboides floribunda* is good. There is little variation in the supplies of foliage plants.

CUT FLOWERS.

Daffodils are more plentiful, yet the prices are maintained for the best blooms of Trumpet Major. Messrs. Collins Bros. are already sending in the Double Daffodils (*N. Telamonius plenus*). The variety Golden Spur is also seen. There is a glut of Tulips on offer at low prices. Chrysanthemums, being plentiful, considerably affect the sale of other flowers. Callas are over abundant and very cheap; very fine blooms were offered at 2s. 6d. per dozen this morning, but their value may advance at any time. English Violets are of very fine quality, Princess of Wales is the largest variety, but the variety known as Kaiser is more fragrant, besides being a good colour. French flowers are abundant. *Acacias* (*Mimosas*) in several varieties are at their best condition. *Narcissi Paper White*, *Grand Monarque* and *Soleil d'Or*, *Roses* and Violets are also imported in considerable quantities. A. H., Covent Garden, January 12, 1910.

NEW INVENTION.

A VACUUM FRUIT COOKER.

MESSRS. MEDCALF & Co. send us particulars of their "De Luxe" vacuum cooker. It is recommended for cooking Apples and Pears. The apparatus consists of a round vessel holding boiling water, the steam from which passes up through capped cylinders, perforated with tiny holes, upon which the fruit is fixed.

The fruit is cored, and then impaled one on each cylinder. The cooker is placed either on an ordinary or a gas stove, and, as the steam rises, the fruit is cooked gradually from the inside. After about 15 minutes the tray is lifted bodily out, and the fruit is then ready for serving.

ENQUIRIES AND REPLIES.

HARDY CYPRIPEDIUMS.—In answering my query respecting hardy *Cypripediums* (see p. 32), you mention *C. pubescens* among those which require peat or leaf-mould. There appears to be deeper reasons for the well or ill-doing of these *Cypripediums* than we at present seem to know. For instance, *C. pubescens* is one of the few species with which I have been successful, and it is growing with *C. calceolus* in clay, which has lime in it. With *C. montanum* I have entirely failed. Is it possible that *C. tibeticum* can become established in this country, considering that it lies deep under snow and frost all the winter at home? None of the *Primulas* that I know from the high Chinese mountains can stand our climate. I have a suspicion that the presence or absence of lime plays a far more important part in the cultivation of hardy *Cypripediums* than seems to be recognised. I have had quite contrary advice given me regarding their culture. B. L.

The success or failure in establishing *Cypripediums* in this country depends largely upon local conditions, and no hard-and-fast rule can be laid down as to what each species requires in the shape of soil. In one place the plants will flourish in a certain soil, while a few miles, or even yards, away they refuse to grow under apparently identical conditions. It is only possible

to convey a general idea as to their requirements, and it remains with the cultivator to experiment with them in order to find the spot where they will grow best. It is interesting to learn that *C. pubescens* grows well in loamy soil with lime in it. Under pot culture, it succeeds well in a mixture of fibrous loam and peat, flowering every year. With regard to *C. tibeticum* being covered with snow in winter, this fact applies to numerous alpine plants which do well in this country. As for the *Primulas* from the high Chinese mountains, many of them are of a biennial nature, and die after flowering. Sometimes a few plants will survive under favourable conditions, but it is best to raise them from seed annually. With reference to the suggestion that the presence or absence of lime plays an important part in the cultivation of hardy *Cypripediums*, perhaps it does; but even then it is difficult to hit upon the right proportion needed by the individual species. Excess or deficiency of a certain constituent may cause failure.

ANSWERS TO CORRESPONDENTS.

ASPARAGUS: L. T. P. You appear to have all that is necessary to force Asparagus. Collect sufficient stable manure and leaves to put into five lights in the heated pit; the depth of this hot-bed must depend to some extent on the quantity of material available, but it should be at least 3 feet. Cover the bed with a thin layer of rotted manure, and leave it for a few days to settle. Then lift the Asparagus roots carefully from the ground, and place them as closely together as possible on the surface of the bed. Cover them lightly with fine leaf-mould, and apply water at a temperature of 70° to settle the soil amongst the roots. After a few days the shoots will begin to grow, and may be covered with 4 inches of leaf-mould passed through a fine sieve. The young shoots will grow quicker and better after the final covering is applied, but the temperature of the bed must not be allowed to exceed 75°, or failure will result.

BALSAM: F. F. The hardy Balsam you describe is no doubt the plant known as *Impatiens Roylei*. It has been figured in the *Botanical Register* as *I. glandulifera*. The species is a hardy annual, and frequently grows as high as 10 feet in out-of-door positions in this country.

CARNATION FAILING: J. McH. and Carnation. Neither disease nor eelworm is present. The spots on the foliage are due to an excess of moisture.

COLEUS THYRSOIDEUS: Reader. Judging from the photograph, the plants are no better specimens than have frequently come under our notice.

CYANIDING PLANT-HOUSES: Fumigator. See reply to *West Sussex* in the issue for December 4, p. 388.

EXAMINATIONS: M. K. B. A knowledge of botany, chemistry, and physics is valuable to a gardener. You can enter the examinations of the Board of Education in these subjects. Proficiency in land surveying, book-keeping, arithmetic, mensuration, and similar subjects is useful. Both the examinations you mention would be suitable for a gardener.

FREESIAS: W. M. Some correspondence took place in our columns last season on the number of flowers developed by these bulbous plants. In the issue for February 13, 1909, p. 106, R. A. states that he had flower-stems bearing 15, 12, 11, 10 and 9 blooms respectively. Your examples, with 10 and 12 blooms, although very fine, do not constitute a record.

GARDENER'S NOTICE: H. H. The trouble would not have arisen had you obtained a satisfactory agreement with your employer before taking up the situation, a practice we have frequently recommended in these columns. It may be found you have no redress now that you have already accepted the week's money. As the expenses incurred are serious, it may be worth while to state your case to the committee of the British Gardeners' Association, addressing the letter to the secretary, Mr. J. Weather, Talbot Villa, Talbot Road, Isleworth.

GARDENIA DYING: H. A. P. The plants are affected by "collar-rot," caused by *Botrytis vulgaris*. Water the plants with a weak solution of sulphate of potash. The disease has probably spread through propagating from diseased stock.

GRAFTING THE CLEMATIS: Adam. Plants for the purpose of furnishing scions should be placed at once in a gentle heat. The shoots will be ready in about three or four weeks, and must be worked upon roots before they become too ripe. The propagating house should be provided with a bottom heat of from 70° to 75° and cases that can be kept closed. Select suitable pieces of roots from the stock plants, and, by means of the whip system, graft the scions upon them, binding them tightly with raffia. Pot the roots in thumb pots, placing the scion as deeply as possible without covering the buds. Plunge the pots in a layer of cocoa-nut fibre in the frames. Exclude the light from the frames for several days, but open the cases at intervals to allow excess of moisture to escape. After about two weeks the buds will begin to push, and when the shoots are a few inches in height the plants should be taken out of the cases. Shift them later into 5-inch pots, and gradually accustom them to cooler conditions, until in July or August they may be plunged out-of-doors.

NAMES OF FRUITS: J. E. Mère de Ménage.

NAMES OF PLANTS: W. E. 1, *Cunninghamia sinensis*; 2, *Juniperus Sabina*; 3, *Tsuga canadensis*; 4, *Juniperus virginiana*.—*C. S.* *Ornithogalum lacteum*.—*C. G.* 1, *Odontoglossum cirrhosum*; 2, *Cypripedium Sedenii*; 3, *Cypripedium villosum*.—*W. S.* *Oncidium excavatum* (aurosium).—*Interested.* *Zygopetalum intermedium*.—*W. D. R.* 1, 2, 3; these *Phloxes* cannot be named in the absence of flowers; 4, *Arenaria* sp. (send flowers); 5, *Saxifraga trifurcata* var.; 6, *Polygala Chamæbuxus*; 7, *Acæna Novæ Zelandiæ*; 8, *Thymus Serpyllum*; 9, *Saxifraga hypnoides*.—*W. B., Besboro'.* 1, *Begonia acutangula*; 2, an *Asparagus* (in the absence of flowers and fruit, the species cannot be named with certainty); 3, *Asparagus deflexus*; 4, *Erica melanthera*; 5, *Moschosma riparium*. The "Beetle" sent for identification is an adult male specimen of *Blatta australasica*, one of the cockroaches (see p. 43).—*R. H. B. S.* *Ornithogalum lacteum*, a South African bulbous plant belonging to the Natural Order Liliaceæ. Were the flowers in this instance produced by a plant in cultivation in this country or were they imported in a cut state from South Africa?—*H. H.* 1, *Maxillaria variabilis*; 2, *Oncidium pubes*; 3, *Oncidium flexuosum*; 4, *Odontoglossum constrictum*; 5, *Brassia verrucosa*; 6, *Cypripedium insignis*.

PRIMULA X KEWENSIS UNHEALTHY: A. R. No disease is present; the trouble has been caused by over-watering the plants.

TREES PLANTED IN CLAY: Clay. You did wrong to plant fruit trees in crude clay from a brick-field, and we are not surprised that they have done so badly. As the soil is naturally of a light character, you should have incorporated plenty of leaf-mould or other vegetable matter with it and used well-rotted manure, preferably cow-dung. The clay should have been dried and then pounded, mixing it with the soil as finely divided as possible. As the trees are a failure, it is advisable to dig them up and plant again. During dry weather the ground can be kept moist by applying a mulching of manure, and this will also afford a manurial stimulant to the roots.

WINTER WASH: W. E. You must not apply the caustic alkali wash to evergreens; it is only suitable for leafless trees in a dormant state. *Magnolias* being as a rule of moderate dimensions, it would be possible for you to remove the lichen by means of a scrubbing brush and warm, soft-soapy water.

YEW TREE: L. T. P. The best time to remove the tree is in April or early in May.

Communications Received.—Dr. A. B. R.—A. J. R. & Sons—Rev. D. R. W.—H. M. V.—A. D.—G. J. I.—Eden A. T.—Edmond, B.—B. G.—The Railway Gazette—W. E. G.—J. U. & Sons—S. A.—W. W. P.—W. B. H.—H. F. A.—P. J. D.—H. S.—W. H. Y.—W. E. V.—West Indies—C. B. L.—E. H. J.—F. J. C.—John S.—T.—D. M.—G. W. R.—C. P.—T. & Co.



W. & A. G. & Co.

GARDENING.

CŒLOGYNE CRISTATA BEARING 1,400 BLOOMS.

(THE SPECIMEN WAS CULTIVATED IN MR. ZENUS CRANE'S COLLECTION AT DALTON, MASS., U.S.A.)



THE Gardeners' Chronicle

No. 1,204.—SATURDAY, January 22, 1910.

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Welwitschia mirabilis growing in Damaraland (Supplementary Illustration).	

WELWITSCHIA MIRABILIS.

(See figs. 31, 32, 33, and Supplementary Illustration.)

ALTHOUGH the plant represented in our illustrations has been known for rather less than half a century, few, if any, other members of the vegetable kingdom not in economic cultivation have served as the excuse for so much writing. Discovered by Welwitsch in 1861 on the barren plateau between Mossamedes and the mouth of the Cunene, and, almost simultaneously, by the artist Baines in the desolate gorges of the Swakop in the hinterland of Walvis Bay, and introduced to the scientific world by Sir Joseph Hooker's classic memoir in 1863, Welwitschia has been the subject of a remarkable number of notices in horticultural, botanical and even popular literature. It owes this distinction to an unusual combination of circumstances. Its bizarre form, suggesting a Rip Van Winkle among seedlings, is in itself sufficient to arrest the attention of the most casual observer. In 1904 the writer was for a short time the guest of the small garrison of a German fort in the neighbourhood of which many of these plants are found. It was believed that at any moment the station might be surrounded by a body of insurgent Hereros. Nevertheless, the second in command, a corporal, persisted in disregarding the perils of the situation in order

to dilate upon the peculiarities, and speculate as to the origin of this vegetable curiosity, which he had just seen for the first time. The locality in which it flourishes is hardly less remarkable than the plant itself. Imagine a wilderness, rugged and barren, in which rain rarely falls and upon which, from morning to night for months or even years at a stretch, the rays of a tropical sun beat down through the clear, dry air with an intensity that must be felt to be understood. This desert, a coast strip some 750 miles from north to south, is small in extent compared with the Sahara or the Gobi, but not less severe in the conditions which it imposes upon the plants living in it. These conditions must, in some degree, be held responsible for some of the many extraordinary features presented by Welwitschia. But the highest claim which this plant makes upon the interest of the botanist is in consequence of the great difficulty that has been experienced in assigning it to its proper position in the plant kingdom. It remains where Sir Joseph Hooker placed it, viz., in the vicinity of Ephedra and Gnetum with which it is united in the group Gnetales. But how close is its relationship with these two genera and in what degree either of the three

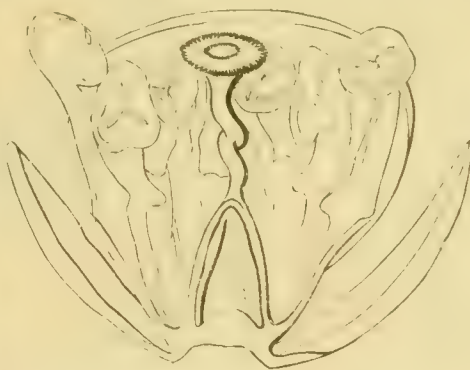


FIG. 31.—SECTION OF A MALE FLOWER OF WELWITSCHIA MIRABILIS, AFTER HOOKER. (Magnified.)

is akin to others—Cycads, Gingko and the Conifers—of the great Gymnosperm class to which they all belong, must be admitted to be among the unsolved problems of botanical science.

Near Mossamedes, Welwitschia usually grows in deep sand; in Damaraland and Great Namaqualand it more commonly occurs on rough, stony ground at the base of a slope or hill. In such situations the plants are almost always found in shallow channels carved out by running water. If the channel is a long one, it may contain a number of plants similar in size and, therefore, presumably of the same age. The seeds are produced in large numbers, each enclosed in its winged envelope (fig. 32 E-G). After their separation from the cone, they are carried far and wide over the plains by the wind. They may travel until they are broken up by contact with the ground or their further progress is stopped by a shower of rain. Such a shower is rare in the greater part of the Welwitschia region, but now and again, in a period of years, there is a sufficient fall of rain to float off seeds lying on the ground and to carry them down the channels in which the surface-water flows until it is absorbed by the thirsty soil.

In the Damaraland desert in March, 1903, several hundreds of seeds, with a miscellaneous collection of insect-wings and other light debris, were found in a hollow in such a channel into which they could only have been carried by water. Seeds deposited in this way in sandy depressions germinate rapidly when the sand is sufficiently moist; it is probable that a further condition necessary for germination is a degree of protection from strong sunlight. At first the energies of the young plant are mainly devoted to the production of a long, thread-like tap-root.* It may be supposed that, if this does not reach a depth at which a sufficient supply of underground water is obtainable before the moisture supplied by the streamlet which brought the seed has evaporated, the germination is in vain. In this rapid elongation of the root while the development of the young plant in other directions is held in abeyance, we see one of the most important of the adaptations by which the existence of the species in this region is made possible. The advantage which the root thus obtains over the other organs of the plant is never lost; in an old plant in which the stem rises a few inches above the ground, the root is so long and to such an extent has it penetrated the fissures in the underlying rocks that attempts to reach the end of it are unavailing.

Before the remarkable embryonic organ, known as the "feeder," has exhausted all the food-stores in the seed, the two short, strap-shaped seed-leaves have become green and the little plant has commenced to provide its own food. Meanwhile there appear on the flat top of the stem, between these leaves, two small outgrowths—green, leaf-like expansions, becoming, in older plants, corky knobs—whose nature is obscure. It was at first believed that the seed-leaves persist throughout the life of the plant. It is now known that they soon fall away and are replaced by a second pair placed at right angles to the first.† These are the leaves which persist, and it is only in very rare cases that any others appear.‡ As the top of the stem broadens and assumes its familiar, more or less two-lobed, elliptic form, its rim becomes elevated above the middle, so that when seen from above, it bears some resemblance to the wooden basket commonly used by gardeners—but the sides and bottom of the basket are lined with irregular corrugations and lumps of hard, brown or black cork. In sandy situations, the hollow top of the stem becomes filled up with blown sand in which, in moist seasons, grasses and a few other small plants establish themselves. The leaves arise from a deep groove in the rim. In very old plants, one side and the middle of the stem are sometimes completely broken away, and there is left only a piece of a leaf-bearing rim projecting above the ground. In the young plants the leaves are only a few centimetres broad, but as the stem increases in diameter the base of each leaf broadens and extends more or less completely round half the circumference. As long as the stem is alive the leaf continues to increase in length at its base, while, at the other end, it dries and breaks up. By the action of the wind it is split irregularly into numerous stiff, thong-

* Pearson. *The Living Welwitschia*. *Nature*, 1907, p. 36.

† *Gardeners' Chronicle*, Jan. 7, 1882, p. 15.

‡ Such an exceptional case is under investigation by Mr. Sykes at Cambridge.

like strips, several feet in length, which usually become more or less confusedly tangled (see Supplementary Illustration). Sheltering beneath them are found beetles and other insects—almost the only evidences of animal life met with in the Welwitschia desert.

The plants, so far as has been observed, are dioecious. The inflorescences, each bearing many cones, arise from pits in the sur-

face of the stem, usually just above, sometimes just below, the origin of the leaf. In a good season the great profusion of cones arising from the rock-like and seemingly dead stem is truly astonishing. A very good idea of the form of the greenish-yellow, male cones is given by Mr. Worthington Smith's drawing (fig. 32 B). The flowers, each above its bract, are arranged in four rows, from 50 to 70 in each cone. Each flower contains six, three-

lobed, stalked anthers surrounding an ovule which is always barren; these are, in the young condition, enclosed in the four "perianth-leaves" (fig. 32 J). When the anthers are mature, they project on the surface of the cone (fig. 32 B, H), and so release their minute pollen grains, shaped rather like Rugby footballs (fig. 32 L), so that they come into contact with the lower surface of the body of the insect (Odontopus



FIG. 32.—WELWITSCHIA: MALE AND FEMALE CONES.

- A. Female inflorescence, showing purplish cones of the real size.
 B. Male inflorescence, with anthers projecting beyond the bracts.
 C. Transverse section of female cone.
 D. Longitudinal section of female cone.
 E. Bract and perianth of female flower.
 F. Transverse section of bract and perianth, showing the seed.
 G. Oblique view, showing the bract and the female perianth, $\times 2$.

- H. Portion of male cone with bracts and projecting anthers.
 J. Plan of male or hermaphrodite flower with a bract, two outer boat-like segments, and two inner broad concave segments. The six stamens spring from a membranous tube surrounding an imperfect ovule. (See also fig. 33.)
 K. One of the stamens showing the three-lobed anther opening by three cracks, $\times 10$.
 L. Pollen grains magnified 300 diam.

sempunctulatus), which carries them to the female cone.

The female cones, which are a little longer and much thicker than the male (fig. 32 A), may produce each as many as 60 seeds. In the young cone the bracts are green, but as the time of pollination arrives their colour changes to a dull, rich red or purple; when the seeds are ripe the red has faded and has been replaced by a straw colour. The figure of the female inflorescences (32 A) is not perfectly accurate, for at the stage represented, above the apex of each bract (excepting a few at the top and bottom of each cone), there should be shown a fine projection like the end of a needle—such as is seen in fig 32 E. This is a very fine tube, formed by the open end of the seed coat. It is a structure of great importance, for upon its tip, which at the time of pollination bears a small drop of sweet

been mentioned, plays an important part in the scattering of the seeds by the wind.

Many of the structures which have now been briefly mentioned are more fully described in Sir Joseph Hooker's monograph and elsewhere; with regard to their correct interpretation botanists are still by no means agreed. Until this has been found, the difficulty of determining the place which *Welwitschia* should occupy in a natural system of classification will remain. It is probable that we have in the living members of the class Gnetales, the last few survivors of an ancient stock whose connection with one another and with the other great groups of the flowering plants is obscured, perhaps for ever, by the disappearance of forms that would have made these relationships clear. In the absence of these it may well be that *Welwitschia* will continue in a position of systematic isolation

single rod method of culture is adopted. Indeed, this is the general method even where a whole house is filled with one variety—Muscat of Alexandria, Madresfield Court, or any other sort. There does not appear to be any reason why a house of this kind, containing but one variety, should have 10 or 20 vines when two would fill the house equally well in course of time, beyond the fact that a longer period is required to establish the larger vines in a thorough bearing condition. The error most commonly committed in pruning vines consists in allowing too great a length of leader during the first four years. I have many times seen as much as 6 feet of leader left the second year of pruning, purely for the purpose of filling the allotted space quickly. Such a method of pruning results in weak places in the main stem. In that weakened space the side growths from the rod will be weakly, and will produce inferior bunches. This would not matter so much if it were only a feature for a season or two, with a chance of

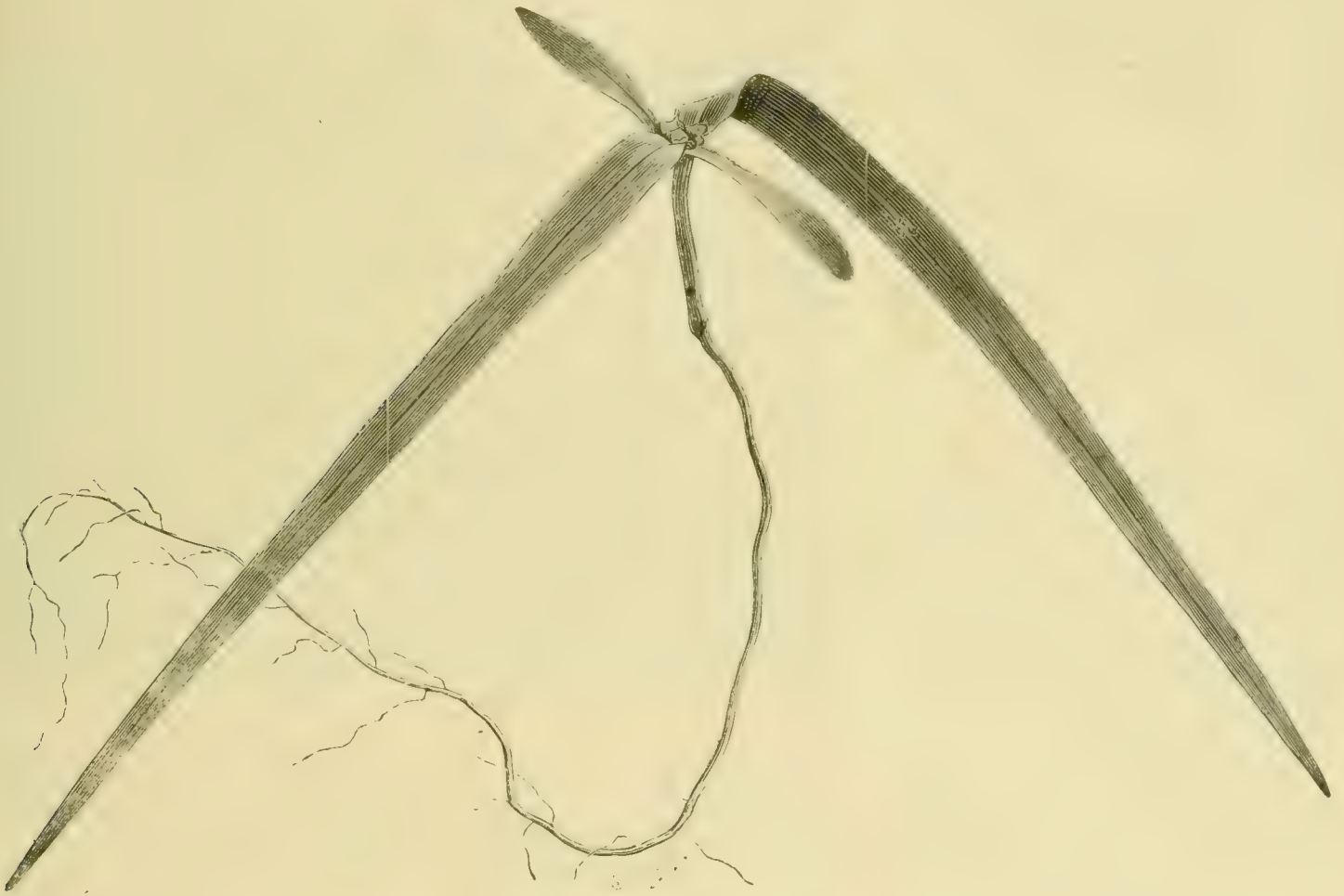


FIG. 33.—SEEDLING *WELWITSCHIA* (MONTEIRO).

fluid, the insect deposits the pollen grains. They sink slowly in the fluid, which fills the tube; in due course they germinate and fertilise a number of the female nuclei in the ovule enclosed by the lower part of the seed coat. One may imagine a severe struggle for existence among the many minute embryos thus formed. In the race that ensues one embryo, by reason of a more favourable start or more rapid development, reaches the richest part of the albumen before the rest. It becomes the embryo of the seed; the others, which it has outpaced, develop no farther and are eventually absorbed by the winner. Outside the seed and its seed coat there is a second envelope, sometimes called the "perianth," provided with a thin, papery wing (fig. 32 F, G), which, as has already

analogous to that which it occupies in space with respect to the few other plants that share with it the desolation of its native deserts. H. H. W. Pearson.

THE PRUNING OF YOUNG VINES.

I FREQUENTLY see cases in which vines are mismanaged in small gardens which in other respects are properly looked after. Many failures are traceable to attempting to fill a newly-planted vinery in too short a space of time. Patience ought to be exercised, seeing that the vines should be expected to last in good condition for at least 25 years without renewal of the canes; and, as a matter of fact, they will last double that time under proper management. Generally, if a grower has but one vinery, it contains several varieties of Grapes; in that case, the

gathering strength afterwards, but this never happens. The vines exhibit the failure as long as they are retained. How much better it is to see a vine of 50 years old or less with a regular tapering rod, with the thicker portion at the base and an even distribution of side spurs of equal strength and quality.

Now as to the initial stages of pruning, assuming that the vine started its growth from the base where as a pot plant the first growth sprang. This would be on a level with the border. I always like to induce the lower eye of the vine near the soil to make the foundation growth. I prune down to two eyes when planting from the pots and allow the two growths to progress for a time as a safeguard until it is seen that the lower growth is secure from slugs and is healthy and promising. I then remove the one above. In the first year the growth should

reach to a height of about 14 feet. From this first length of rod up the rafter, the result of the first year's growth. I cut back so much as to retain one pair of side shoots and a leader, which means three buds above the first wire, which is generally placed 18 inches or 2 feet from the border—in some vineries less and in others more. For the first year one bunch of fruit is sufficient, since, by overcropping the first year, the growth becomes crippled and never regains the vigour necessary to last in good condition 30 years. Were the vines intended to last but a few years (as is the case in market nurseries) it would not matter if they were allowed to carry half-a-dozen bunches the first year. The leader should not be allowed to carry a bunch: it is better for the future progress of the vine if the strength is spent in growth rather than in perfecting fruit.

The subsequent pruning should be carried out in the same way. The pair of side shoots left the year previous should be cut back to within two eyes of the cane, or main rod, as it is now called. The reason for allowing two eyes on each side shoot is to provide two strings to the bow as it were. If the basal leaf of the current year's growth does not come perfect in form, or fails to develop itself fully, there is not much likelihood of a good bunch of Grapes coming from the shoot. But if it is seen that the shoot nearest the main rod is perfect in growth the second shoot should be rubbed off so that the spurs can be kept short and near the main stem for a greater number of years. Subsequent pruning of the side shoots should be on similar lines; the leader should not be allowed to extend more than 2 feet each year, because the number of side shoots annually added will provide space for a full crop of fruit. Each spur will give a bunch, or two if necessary, but it is not wise to allow it to do so. If every spur will give one desirable bunch there is no need for the leading canes to be longer than 2 feet. *E. Molyneux.*

FLORISTS' FLOWERS.

CACTUS AND POMPON DAHLIAS.

THE following is an up-to-date list of the best Dahlias. Many of the finest exhibition Cactus varieties are not good for garden purposes; for instance, J. B. Riding, the blooms of which are very beautiful when wired and staged at an exhibition, but make sorry specimens when placed in an ordinary vase. The most critical growers are those who exhibit their blooms, therefore I will give a list of the choicest exhibition Cactus Dahlias first.

Amongst those introduced last spring were two good, white kinds, viz., Snowdon and Snowstorm. Snowdon is in many respects the better of the two: it is a deeper flower, although not so perfect in form. The florets are pure white.

SNOWSTORM requires a considerable amount of thinning of the shoots, otherwise there will not be sufficient florets to produce a perfect bloom, and the pollen will show. The habit, form, and height of the plant are quite different from Snowdon.

BRIGADIER is a very useful variety, with deep-red flowers. The plant is of dwarf habit, free in growth, and produces blooms of good form but narrow in the florets. The plant is easy to cultivate, and likely to become popular.

GLORY OF WILTS.—This is probably the finest yellow Cactus Dahlia, but it is rather shy in flowering. The plant does not grow very tall. The flowers are very incurved and of large size.

SAXONIA.—The colour is a rich crimson, but the plant is, like the last-named, very shy of flowering. The habit is robust, the leaves being very large. The blossoms are perfectly incurved, and they are composed of narrow florets.

REV. T. W. JAMIESON.—This is one of the best all-round Cactus varieties. The plant develops a good habit, has strong stems and well-formed flowers, combined with a healthy constitution. The blooms are a pretty shade of lilac-rose, with a yellow-tinted base.

SATISFACTION.—This variety has been applauded by some and condemned by others. I have found it to be a fine exhibition flower, of most reliable and lasting qualities, and should include it in a list of the best dozen varieties. It must, however, be planted early and its season pushed forward as fast as possible, as the flowers develop slowly. In form, colour, and shape of floret, this variety is everything that can be desired.

MONARCH.—In this we have a particularly deep and lasting flower of fine form. The plants are dwarf, and produce long flower-stems. It is not advisable to thin them too rigorously, as this causes the flowers to develop exceptionally-large centres.

NELLIE RIDING.—Although not over robust, this is a healthy and free-flowering variety, with flowers of great beauty. The base of the florets are a deep-crimson colour, and the tips pure white. The flower-stalks are rigid.

FLORA.—This is even prettier than the last-named, the base of florets being tinged with yellow and the tips white. The plant requires careful attention, as it is never very strong. The blooms are of barely medium size.

MARATHON.—This variety has a wretched flower-stem, but the flowers themselves are splendid, being good of form, large in size, and brilliant in colouring. The plant is a strong grower, and it is only the flower-stem which is weak. Its value is as an exhibition variety.

DEBUTANTE.—Similar to the last-named, this is chiefly useful as an exhibition variety, having florets of the most approved form, together with a delightful, soft-pink colour.

ROYAL SCARLET.—This is worthy its name, the colour being very rich. The flowers are produced on dwarf plants, but the blooms are large, very slightly incurved, and possess splendid centres. The variety is useful for either exhibition or garden purposes.

Of the varieties distributed during 1908, the best are:—

C. E. WILKINS.—A fine flower of first-class form, the plant being one of the easiest to cultivate.

MRS. WALTER BAXTER.—One of the few good dark flowers. The flower-stems are long and the blooms are incurved. The habit of the plant is dwarf.

FLAME.—This is chiefly useful for showing in bunches, as single blooms are very thin. The plants are of good habit, free, and constant in blooming.

HAROLD PEERMAN.—The best all-round yellow Dahlia, but lacking the form of Glory of Wilts, although better in other respects.

IVERNIA.—A very large flower of salmon-fawn colour. The plant is of splendid habit, with wiry shoots, and free in flowering.

DR. G. G. GRAY.—After a partial failure in 1908, this variety was again good last year. It produces flowers of splendid form, with narrow florets of a rich-crimson colour.

A few of the best of the older sorts are:—CARADOC, Clincher, Ruby Grinsted, Lustre, Eureka, Dreadnought, Mrs. W. H. Raby, William Marshall, J. B. Riding, Crepuscule, Advance, H. W. Sillem, and Mrs. Grinsted.

Amongst the best Cactus Dahlias for garden purposes are those following:—

SNOWDON; REV. JAMIESON; ECHO, with silvery rose-coloured flowers of fair form, carried on erect flower-stems, but not refined enough for exhibition purposes; FLASH, a typical, small-flowered, garden Cactus Dahlia, free in blooming, and with wiry flower-stems; REV. A. BRIDGE, probably the best-stemmed Dahlia raised; the colour is yellow at the base, passing to rosy-pink at the tips; FOXHUNTER, a capital, scarlet-coloured flower, of neat form, and possessed of a good stem; DREADNOUGHT, not over-strong as regards stem, but still one of the best garden Cactus Dahlias, taken as a whole; CARADOC, the best-

stemmed, yellow variety for garden purposes; ZOË, the best-stemmed of the white kinds; STAR, a good all-round variety, with orange and yellow-coloured blooms; PRIMROSE, another capital garden flower, the name denoting the colour.

Other good, hardy sorts are Stalwart, Delight, Mrs. Brousson, J. H. Jackson, Ella Kraemar, Ajax, and Amos Perry.

No mention has yet been made of the fancy Cactus Dahlias; six of the best of these are Sirius, Mercury, Victorian, Diavolo, Flora, and N. Riding, the last two being included amongst this type.

The Pompon section, unlike the double and fancy Cactus types, appears to attract the attention of raisers, and new varieties are introduced in fairly large numbers. The following are 24 of the best sorts, those of recent introductions being enumerated first:—

ANNIE DONCASTER, a typical Pompon Dahlia, with very neat and pretty blooms; the colour is yellow, shaded with pink at the tips of the florets. DONALD, a bright-crimson flower, after the style of Bacchus. LASSIE, in colour somewhat similar to Annie Doncaster and quite perfect of form. ARTHUR KERLEY, rather distinct in colour and of capital form. AMELIA, this also is a neat and pretty flower, the colour being pink, with a lighter centre. LADDIE, a crimson variety, of perfect form and floret.

Other good Pompon Dahlias are:—Tommy Keith, Nerissa, Darkest of All, Bacchus, Girle, Ideal, Jessica, Douglas, Daisy, Adelaide, Queen of Whites, Rosebud, Nellie Broomhead, Gany-mede, Kitty Barrett, San Toy, Little Mary, and Emily Hopper.

Very few Pompon Dahlias are unsuited for garden decoration, and, considering the ease with which they are cultivated, it is surprising they are not more extensively grown. The colours are both brilliant and beautiful; in fact, few flowers can boast of greater variety in these respects. *P. P.*

NOTES FROM GUERNSEY.

At the Rohais Nurseries of Mr. A. J. Guilbert are some new Richardias, the result of crossing R. Elliotiana with the Godfrey Arum which was raised by Mr. W. J. Godfrey. The new variety has a leaf spotted white on the dark green and a mottled stem of purple, brown, and greenish-yellow, like the Golden Arum. Its leaves are more arrow-headed in shape than those of R. Elliotiana, and very similar to those of the Water Arrowhead, Sagittaria sagittifolia. The trumpet bracts, or spathe, are like those of Mr. Godfrey's Callas, pure white, with hardly a trace of green near the petiole; and the spadix is of a lemon-yellow, similar to the variety Mrs. Roosevelt. At the base of the spathe, on the inside, are deep purple markings. This promises to be a very popular market variety as soon as it is known, for the handsome foliage sets off the chaste blooms to perfection. The plants seem very floriferous.

Mr. Taylor, of Les Osmondes Vinerics, Coutanchez, is putting on the market a new Tomato, which he claims to be the hardest Tomato yet grown. Appearances seem to indicate that the claim can be substantiated. This has been a very trying and somewhat cold autumn locally, with plenty of rain and wind, yet, during the second week of November, Mr. Taylor showed, at the Guernsey Autumn Exhibition, a large dish of nearly 100 fruits which he had gathered from the open fields on the first of the month. They were a deep, bright red, and as firm as a Tomato grown in June; besides which, they are perfectly spherical and with not a trace of an eye. Mr. Taylor has named them Bonne-bouche, a very appropriate description, for even some gathered towards the end of November made a remarkably good mouthful as dessert fruit. One of the parents is The Clipper, a Tomato which has done well here, and of

which an improved variety called The Queux Clipper has been put on the market by Les Queux Manor Vineries Co.

Following up my previous notes on Nerines, I am glad to say that Messrs. Wheadon & Son have some seedling Nerines of quite novel form. They are the results of crosses between *N. Fothergillii* major, *coruscans*, and *crispa*. From *crispa* they get the twisted petals, and these have been developed until a quite Cyclamen-like floret has been produced, giving a very effective and graceful appearance. A few of them also are bi-coloured. One batch of the seedlings appears to be the deepest crimson yet produced, with whorls of florets (as many as 12 to 14) of a deep velvety-crimson, more blood-red even than the recent hybrid *Excelsior*. The stems are from 18 to 24 inches in length, and the florets have very long petals. Last year was a wonderful year for the flowering of Nerines, and the weather just suited them—dry and warm in the early part of the year, and damp during the flowering period. There are

A thoroughly novel shape, of quite unconventional and very graceful form, has been well named Honeysuckle, for at a short distance both in colour and shape the flowers give one the idea of the blooms of the wild Honeysuckle. They are, of course, of the quilled variety. Three new and good quilled varieties are named Pink, White, and Bronze Quilled. A very pretty white flower, and one which will make a fine companion to White Dove sent out by Mr. Lilley this autumn, is Seagull. The petals are broad, tipped or oar-shaped, and have a very light appearance, as they are slightly bent at different angles.

Mr. W. H. Lancashire, the raiser of the Carnations *Rose Doré* and *Emperor*, has a grand new seedling of the perpetual-flowering class, which is of quite a new tint and is, so far, the brightest purple grown. It is expected to be named *Purple Emperor*. It opens rather slowly, but the calyx does not burst, and the bright purple of the whole petals catches the eye all over the house. Flower-stems are 2½ feet long, and both growth and flower seem ideal. *W. S. B.*

far south as Peru, and thence across the continent to Monte Video. This *Monte Video* form was called *E. montevidensis* by De Candolle, and is sometimes still cultivated under the name of *E. floribunda* var. *montevidensis*. *C. F. Ball.*

TREES AND SHRUBS.

ABIES WEBBIANA.

SEEING that Douglas described as "lovely," "noble," "grand," and "magnificent" certain Silver Firs of less attractiveness, one wonders, having regard to his great admiration for these handsome trees, what laudatory title he would have given this Himalayan species had he been fortunate enough to have introduced it to this country. In *Abies Webbiana* we have a Silver Fir which does not fail to arrest the attention of even the most casual observer. Its rich, green leaves, with their broad and decidedly silvery lines on the under surfaces, are much larger than those of any other member of the Fir family, whilst its long blue cones, only second in size to the huge fruits of *Abies nobilis*, are considerably larger than those of any other blue or bluish-purple coned Fir.

There are two drawbacks to the successful cultivation of *Abies Webbiana* in this country, the chief being the irregularity of our winters. On its native mountains the seasonal changes of weather succeed each other almost with the regularity of the phases of the moon, and when once winter sets in the snows fall, and it is winter, and winter only, until that season gives place to spring. Furthermore, there are practically no brief returns to winter, as so often happens with us, but after a season of decided rest the trees burst forth into new growth, which is permitted to mature unchecked by frosts. In this country the winters are so inconstant, and the early springs so fickle, that *Abies Webbiana* often fails to have that complete rest so essential to a tree which expends much energy in perfecting an unusual amount of leaf-growth and large, heavy, resinous cones. In addition to this hardship, the trees, deceived by a short spell of mild weather into feeling that another growing season has arrived, burst open their glossy, deep brown buds, and expose their tender, pale green shoots to the spring frosts and cutting winds for which our country is noted.

The second obstacle to be contended with is the brittleness of its branches, which even a moderate gale will dismember. To remedy this, complete protection from all rough winds is necessary, and a north-westerly aspect would do much to delay each season's growth until the danger of injury from frosts is nearly, if not quite, passed. When planted in a fairly rich, moist soil near the bottom of a slope facing north-west, and properly protected from gales, growth is rapid, and shapely, broadly-pyramidal specimens soon grow up; but in any exposed position very little but a bare pole will remain.

During November and on through the early part of December the annual shedding of the four to five-year-old leaves takes place. Before the leaves fall they often assume a bright yellow appearance, and vie in attractiveness with *Cunninghamia sinensis*, which sheds its old branches at this season.

The terminal winter-buds are large and stout, the leading buds being as big round as the branches from which they spring. The globose buds are well protected by glossy brown resin, which, in spring, fades to a pale fawn colour, and, as the scales open, the woolly, inner coat becomes prominent. On a mature tree the leaves which spring from the undersides of the branches average 1½ inch in length, whilst on young trees they are even longer. The staminate flowers are set in the axils of the leaves on the undersides of the branches; they are of a dull yellowish-green colour tinted towards the apex with purple. Towards



[Photograph by C. F. Ball.]

FIG. 34.—ESCALLONIA FLORIBUNDA: FLOWERS PINK.

still a fair number of blooms to be seen here and there. At Messrs. Hubert & Co.'s there was displayed the finest pot of *Nerine Mansellii* that it has ever been my pleasure to see. Quite a dozen flower-stems of grand length, and carrying a profusion of the bright rose-pink florets, were in good form for nearly a month.

Mr. Frank Lilley, of Les Menages, is putting on the market a number of the finest single *Chrysanthemums* which he has yet raised. Amongst them is the new *Apricot*, which was so favourably commented on recently when shown at the R.H.S. Show. But the most popular is nearly sure to be *Gaillardia*. The blooms are of the size and shape of *Gaillardia* flowers. The outer edge of the petals is a bright crimson, inside this is a ring of orange, and the centre of the petals is occupied by a pure white band, while the eye is a bright yellow disc of medium size. The foliage is very fine and healthy and nicely compact. Whether for conservatory or hall or for cut blooms *Gaillardia* is sure to be in demand. Another attractive bloom is *Lavender*, a new shade of silvery-mauve, the petals being very narrow and long and slightly reflexed. *Strawberry*, with the true crushed-strawberry colour, is a flower of good substance and a very vigorous doer, but not a true single.

ESCALLONIA FLORIBUNDA.

THIS *Escallonia* is cultivated against a south-west wall at Glasnevin, and is one of the showiest shrubs throughout September and October. In a fine autumn the strong terminal shoots are crowned with snowy masses of bloom. The panicles are carried on stiff, brown stems; some of the larger inflorescences are 9 inches in length, and the flowers have a fragrance like the common Hawthorn. The plant is attractive even in the bud state, and if the inflorescences are cut in this stage, the flowers will open and remain fresh for 10 to 12 days, the yellow stamens and the green protruding stigma eventually becoming prominent in the centre of the pure white blooms.

Unfortunately, this species is not thoroughly hardy; nevertheless, it is capable of wintering safely on a wall at Kew. A sunny aspect should always be chosen for it. At Glasnevin, near Dublin, a plant 6 feet high always flowers most profusely; while another plant, 10 feet high, but in a partly-shaded position, produces very few flowers.

Escallonia floribunda was discovered by Humboldt and Bonpland, in the Andes of New Granada, at 8,400 feet elevation. Later, the species was found in Venezuela, Colombia, as

the end of April, when the pollen is about to be shed, the purple colour becomes more pronounced, and the green gives place to yellow. At this period the flowers are about an inch and a half long. The pollen is shed in dense clouds; so prolific is tree nature—covering the branches below and carpeting the ground beneath. The flowers, having performed their function, soon fade, shrivel, and fall, leaving their brown scales on the tree; the scales persist for several years, becoming dry and woody. The erect cone-flowers are of a most brilliant blue colour; when fertilised they grow quickly into cylindrical cones some 7 inches long and $2\frac{3}{4}$ inches in diameter, retaining their beautiful colour until very late in the autumn, when, the cone being mature, it fades to a dull brown. In this country the cones usually contain only a small number of fertile seeds, which is to be expected, as such trees are generally self-fertilised. Natural seedlings have been observed in pineta so far apart as Castle Kennedy in Wigtonshire, and Pencarrow in Cornwall, and no doubt instances would have been recorded elsewhere but for the ubiquitous rabbit and other vermin which destroy so much of the young growth of woods and gardens. Extracts from letters of Wallich and Webb in the third edition of Lambert's *Genus Pinus*, state that the fruit in full growth yields, on expression, an indigo or purple pigment. The same authorities state that the wood, though of inferior quality, is of considerable value in its native habitat, and is used for planes, though, judging from the nature of branches grown in this country, the wood is very unsuitable for this purpose, being heavy and short-grained, much inferior to Beech-wood, which is usually employed for plane-making.

There are two examples of *Abies Webbiana* in the Pencarrow pinetum; the larger of the two is 61 feet high and girths 6 feet 7 inches at 5 feet up. It was planted in 1844 by Mrs. Ford's brother, Sir William Molesworth, the enlightened Secretary of State for the Colonies, who gave self-government to Canada, and found relaxation from his parliamentary duties in garden making and in planting the now famous pinetum at Pencarrow. A. C. Bartlett.

The Week's Work.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Pruning bush fruits.—If the pruning of bush fruits has not been commenced already, no time must now be lost in beginning it. As a general rule, newly-planted bushes require more severe pruning than those which have been established for some year. In order to obtain the best dessert Gooseberries, all the leading shoots should be pruned to a length of 9 inches, and, in the case of weakly-growing varieties, the pruning may be rather more severe. Any shoots proceeding from the spurs may be pruned to within two or three buds; should it be found that the spurs are inconveniently numerous, they may be thinned out, thus exposing the remaining spurs and subsequent fruits to the influence of light and air, and rendering the gathering of the fruits a matter of less difficulty. Red and White Currants should be pruned closely, cutting each shoot back to three buds, except a few of the leading growths; these may be left a few inches longer. Black Currants need a different method of pruning, inasmuch as most of the fruit is borne on the young shoots; a certain amount of old wood should, therefore, be pruned away, and the strong sucker-like growths from the base encouraged by leaving them unpruned. Cut out all the weak shoots, and thus prevent overcrowding. If there are any signs of the bud-mite, which causes buds to become swollen in the winter season, hand-picking must be practised in order to remove all the swollen buds, which must be burned. As soon as pruning is finished, all the shoots and rubbish should be gathered without delay, and placed on the fire heap. When this has been done, apply a liberal sprinkling of quicklime and soot, lightly forking these materials into the surface soil. It will not be possible to dig deeply without injuring the roots. If any stimulant is required, a liberal sprinkling of bonemeal may be mixed with the soot and lime. Later, all the bush-

fruit borders may be given a liberal mulch of manure, such as is obtained from a spent hot-bed, and consisting of leaves and stable litter.

Sweet Cherries.—If the sweet Cherry trees against walls had their shoots pinched during the summer, it will now be necessary to shorten the spurs to two or three buds, and train in any leading shoots that are required to furnish more space. Severe pruning must be avoided, as this is apt to induce gummosis. In pruning the trees, should be it be found that any of the branches are likely to press tightly against the wires or any rough portion of the wall, it will be desirable to place pieces of Virginian cork under such portions of the bark, or the friction will be likely to cause gumming. This protection is necessary in the case of all fruit trees trained on walls.

Morello Cherries are generally grown against walls facing the north. Contrary to the sweet Cherries, they fruit on the growths made in the preceding year, therefore, the pruning must be rather different from that practised in the case of sweet Cherries. Cut out all branches that appear unfruitful, and any that are badly placed or that are weakly, and train in as many of the young growths as are required to furnish the space, with the growths trained at distances from 3 to 5 inches apart. Let the trees and walls be thoroughly cleansed in a similar manner to that recommended in a previous Calendar for Apricots. If the border needs attention, it may be treated as advised in the Calendar for January 8.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Spathoglottis.—Such species as *S. aurea*, *S. Lobbii*, *S. Fortunei*, *S. Vieillardii*, *S. Soutteriana*, *S. Kimballiana*, *S. plicata*, and its variety also, also the hybrids, *S. aureo-Vieillardii*, *S. Colmanii*, and *S. C. aurea* are tropical, terrestrial Orchids that deserve a prominent position in every collection. The plants form small corm-like pseudo-bulbs on creeping rhizomes, and bear tall and grass-like foliage. When actively growing these plants delight in much heat and moisture, both at the root and in the atmosphere; an elevated position in the warm plant stove or East Indian house is best for them. While the plants are quite dormant, they should be placed on a dry shelf close to the roof-glass in the same house in which they were grown, but on no account allow the compost to remain dry for any length of time, especially in the case of *S. Fortunei* and *S. Lobbii*, or irreparable damage may be done them. Examine the surface of the soil at least once a week, and give a good sprinkling with water from a fine rose can to any that are dust dry. Some of the plants as *S. aureo-Vieillardii* and *S. Colmanii* will now be showing their flower-spikes, and the supply of water to the roots must be carefully regulated, for if too much be afforded at this time the flower-spikes are apt to damp off, and the plants start away into premature growth. The plants may be repotted soon after growth commences, using fairly large pots, and placing in them plenty of drainage material. Fibrous loam, *Osmunda* fibre, and *Sphagnum*-moss in equal proportions form a suitable potting compost, but the fibre and moss should be cut up rather small, as it will mix better with the loam than if used in a rough uncut state. Add sufficient small crocks to keep the whole porous.

Vanda Watsonii. This species is now developing its flower-spikes. From this time until the flower-buds are well advanced, water at the root should be gradually lessened, and, on the flowers opening the supply should be reduced to a minimum. When in bloom every care should be taken that moisture, either from the syringe or water-pot, does not settle on the pretty white flowers. Treated in this manner, the flowers keep perfectly fresh and free from spot for many weeks. This winter-flowering Orchid, when it becomes more plentiful, will be largely sought after in places where choice blooms are required for bouquets, dining tables and other forms of decoration. *Vanda Watsonii* thrives very well at the cooler end of the Cattleya house, being elevated well up to the roof-glass in a light position.

Dendrobium Sanderae.—Under somewhat similar conditions, though in rather more subdued light, this new *Dendrobium* is thriving very

well. The plant bears a general resemblance to *D. Dearei*, but it is to be hoped that *D. Sanderae* will prove more amenable to cultivation than that species. Although growth has been progressing for several months, the plant has not been heavily watered at any time, but immediately new roots are produced from the young growths the quantity will be gradually increased. Like its allied species its foliage appears to be liable to the attacks of red spider; the leaves, therefore, should be often wiped over with sponge and warm soft-soapy water.

PLANTS UNDER GLASS.

By JOHN DONOGHUI, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Clerodendron fallax.—This valuable winter-flowering plant may be raised from seeds, or the old plants which were reserved for stock purposes may now be placed in an intermediate temperature for furnishing cuttings. It is assumed that the growths have already been pruned, leaving about six eyes or thereabouts on each. Do not apply much water to the roots until the plants have commenced to make growth. Syringe the plants occasionally, and when the young growths are advanced sufficiently to form cuttings, let these be removed with a heel attached to each. Insert them singly in 3-inch pots, using a compost of leaf-mould, peat, or loam and sand in equal proportions. Plunge the roots in a propagating case where a good bottom heat is available. If seeds are sown, these should be scattered very thinly on an even surface of fine soil in shallow pans, containing porous, well-drained soil.

Cineraria.—These plants require ventilation whenever the weather will permit of fresh air being safely admitted to the pits. If artificial heat is necessary in severe weather, it will be necessary to keep a sharp look-out for aphides, which are liable to do a great amount of damage. The plants should be turned round occasionally so that they will not be drawn to one side by the action of the light. Be careful to apply water to the roots before they suffer from the slightest drought, otherwise the foliage will soon show signs of disfigurement. An occasional watering with liquid manure will be beneficial.

Lilium Harrisii.—The earliest bulbs of this Lily may now be introduced into the intermediate forcing house, being careful to select only those which have a fair amount of roots, and are already developing foliage. If space has been allowed for top-dressing, this operation may be deferred until growth is more vigorous. Place a green stake to each growth, and loop them up severally by means of raffia tape.

Eucharis grandiflora.—Specimen plants which have flowered through the autumn are now showing signs of growth. If an increase of stock is necessary a few of the largest specimens may be divided, and the bulbs sorted into sizes, potting the largest by themselves in pots of a suitable size. The potting compost may consist of good fibrous loam two parts, peat one part, and charcoal, coarse sand, and dry sheep manure one part. Use clean pots, and have them thoroughly drained. Do not use a potting stick, but press the soil with the thumb and finger around the roots firmly but with care. If bottom heat is available the pots may be plunged into cocoanut fibre or tan bark up to the rims. Maintain a moist atmosphere by regularly spraying the plants, and occasionally damping the stages and paths. They will not require much water until some foliage has developed. It is not necessary to restrict the roots of *Eucharis* in order to induce floriferousness, indeed, this restriction, if practised frequently, is very detrimental to the bulbs. Considerable success may be obtained by potting up one half of the plants each spring, dividing the largest specimens at the same time. If the bulb mite has attacked any of the plants remove all the soil from the bulbs, carefully preserving the roots from injury, then thoroughly cleanse them with a solution of carbolic or paraffin soap. If the old pots are to be used again they should be washed in a similar manner.

Seed-sowing.—Preparations should be made for this by taking advantage of wet days to thoroughly cleanse all pots and pans, placing them in their respective sizes, and in getting ready a supply of suitable loam, leaf-mould, and sand. These materials should be placed under cover.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL,
G.C.B., Moulton Paddocks, Newmarket.

Pineapples.—Plants that are expected to ripen this season should now have a bottom heat of 75°, and an atmospheric temperature of 80°, which may be allowed to rise to 90° with sun-heat. Admit a little air at the top of the house or pit, whenever the weather is favourable, leaving the ventilators open for one hour at about noon; this will allow of the drying up of any condensed moisture. Be rather sparing in applying water to the roots, and any water that is used should first be warmed to the temperature of the house. Each time the plant is watered the roots should be soaked thoroughly through. Successional plants do not need so much heat, but in other respects they may be treated similarly to those which will fruit this season. All the plants need whatever light is possible, therefore the glass should be washed frequently both inside and out. On cold nights a good layer of long litter from the stables may be spread on the roof, in order to assist in maintaining the requisite degree of heat, without unduly forcing the fires. Examine the plants frequently for insect pests, and take every means to destroy any that may be present. White scale is the chief enemy of Pines.

Fig trees in pots.—Any trees that were started early in December will now require an atmospheric temperature of 60° to 65°, and a moderate bottom heat. Where this is supplied by hot-water pipes, it will be necessary to keep the plunging material thoroughly moist. Figs require a humid atmosphere, and should be syringed with tepid rain-water every morning and afternoon. Sprinkle the paths with liquid manure and well damp them in the evening. The roots of the Fig must never be allowed to lack moisture, therefore the cultivator must not only be guided by the appearance of the surface soil, but must ascertain what it is like where unaffected by the syringings below. Whenever water is given let sufficient be applied to moisten the soil right down to the drainage. The trees will now be sufficiently advanced in growth to benefit by applications of liquid manure. Place collars of zinc or clay around the pots in order that light top-dressings may be applied. These top-dressings may consist of loam and decomposed horse-droppings in equal proportions, and they should be applied when roots are seen on the surface. Pinch the young shoots at the fourth leaf in order that the second crop of fruits may develop.

Fig trees in borders.—Any trees that were started at the beginning of the year may now have a night temperature of 45°. Syringe the plants regularly and otherwise maintain a moist atmosphere by damping the paths. When the leaves begin to unfold, increase the temperature by 5°, admitting a little air on favourable occasions, but close the house again at about noon, in order to husband the sun-heat.

Figs for succession.—If the later trees have not been pruned already, this work should be done at once, and the house cleansed afterwards. Cut all growths of extra strength somewhat severely, and leave only enough fruiting wood to furnish the trellis without overcrowding. Do not remove too much young wood at the base of the tree, for it is not only necessary to have a supply of fruiting wood for the coming season, but the welfare of the tree in future years must be considered. If any scale is present, this must be removed by means of some approved insecticide. When all these things have been done the trees will be in readiness for starting into growth when required.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman,
Royal Gardens, Windsor.

Mushrooms.—It is necessary to form fresh beds every three or four weeks if a regular supply of Mushrooms is required. There being sometimes considerable difficulty in getting the materials in good condition it is advisable to devote an open shed to this purpose. The droppings necessary for each bed should be collected in as short a time as is possible. After being got together they should be turned over every alternate day for a period of 10 days or so. Only the longest straw should be removed. After its removal to the Mushroom house, it will be necessary to wait until the temperature of the fermenting manure

is just on the decline, when spawning may be done at a temperature of 70°. After this, the whole surface may be covered with loam, in a moderately moist condition, 2 inches deep, and pressed hard. No fire-heat should be applied unless the weather is very severe. More failures are due in Mushroom culture to excessive heat and a dry atmosphere than to any other cause. Let the cultivator endeavour to maintain a steady, moist atmosphere and a temperature of 55°.

Onions.—If extra large Onions are desired, a sowing of Ailsa Craig or some similar variety should be made as soon as possible. The seeds should be sown in pans or boxes containing sandy loam, pressed moderately firm. Cover the seeds very lightly with fine soil, and water them gently, covering the boxes afterwards with sheets of glass to prevent evaporation until the seeds germinate. As soon as the plants are large enough they should be pricked off into boxes or small pots, and placed near the glass in a pit where a temperature of 55° can be maintained. When the plants begin to grow, a little air may be admitted both by day and night. After a few weeks they may be removed to a cool frame, keeping the frame closed for a day or two, and afterwards admitting air in increasing quantities until April, when the plants may be put out into ground that has been trenched and manured liberally for the purpose.

Horse-radish.—The present is a good time to make a fresh plantation of Horse-radish. The plant requires a deep, rich soil, and a moist situation. The ground should be trenched, and a liberal application of manure made to it. In this way large roots may be grown in a short space of time. Select long, straight side-roots and place them in rows 2 feet apart, allowing 9 inches between each plant. The roots should be inserted by means of a long dibber.

Rhubarb. Fresh plantations of Rhubarb should be made each season in deeply trenched and heavily-manured land for the purpose of providing roots for forcing. Plant the crowns in rows 5 feet apart, allowing a distance of 3 feet in the rows. Although an open situation is best, Rhubarb for this purpose may be planted in any out-of-the-way part of the garden, provided the ground is manured liberally.

Radishes.—Make frequent sowings of Radishes in a heated pit or on a gentle hot-bed. Good forcing varieties are Wood's Early Frame and Olive-shaped Scarlet.

Chicory.—Place roots of Chicory in the forcing pit each fortnight, keeping the crowns well above the soil. If the soil is already in a moist condition, a good watering should be given at the time of planting, but no further watering will be necessary till the crop is gathered. If an atmospheric temperature of about 60° is maintained, the crops should be ready in three weeks after starting.

Mint, Tarragon, and Sorrel.—Supplies of these herbs may be maintained by placing roots on a gentle hot-bed and covering them 1 inch deep with finely-sifted leaf-mould. Apply a watering with water at the temperature of 70°. After a week the young shoots will begin to appear.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

Lawns.—When it is considered that, for the sake of neatness, everything which would naturally assist the turf is removed by broom, rake or mowing machine, it is not surprising that lawns are often in a poor and exhausted condition. It is, therefore, necessary, during some part of the winter or early spring, to adopt means to improve the turf. Other causes than the one mentioned may be responsible for the unsatisfactory condition of the grass; it may result from an imperfectly drained soil, or perhaps from drought when drainage has been carried out too extensively on naturally hot soils. Another reason may be an insufficiency of suitable loam beneath the turf; when grass is overhung with large trees the drip from these during the winter months also causes a considerable amount of harm. If the land is waterlogged means should be taken to drain it, and the sooner the work is completed after this date the better. Exhausted and weedy turf should receive a thorough dressing of well-decayed farmyard manure, leaf-soil,

loam and road-sweepings in equal proportions, adding one bushel of bonemeal to each cartload of the compost. A good dressing of this should be applied, and occasionally brushed about till the end of March, when seeds of suitable lawn grasses should be sown and well raked and rolled in. Means of some kind should be adopted to prevent the birds from taking the seed. Where weeds, and Daisies especially, are numerous, apply lawn sand in early spring. This dressing requires to be repeated every two or three years. Though it may cause the grass to become brown for a short time, it acts as a stimulant later, and in a short time the turf will assume a deep green colour and grow vigorously. All deep rooting weeds, such as Docks, Plantains, and Dandelions, should be dug out with suitable tools, filling the holes caused by their removal with fine soil and fresh grass seed. Lawns should be thoroughly swept when the weather is suitable, with the double object of clearing off leaves and other rubbish present and dispersing the worm casts. The new, long-handled Bamboo brooms are very effectual for this purpose; they enable the work to be done more easily and thoroughly than ordinary Birch besoms.

Rhododendrons and Azaleas.—These require an annual top-dressing of suitable materials. Though these plants are generally considered to be peat-loving subjects, peat is not essential to their welfare, provided lime is absent from the rooting medium. Good fibrous loam mixed with plenty of leaf-soil suits them. Permanent beds of the choicest varieties should receive a dressing, about 1 inch deep, of leaf-soil one part, decayed cow manure one part, road sand one part, and either good fibrous loam or peat. Being surface-rooting plants, the ground should never be forked between them. Grafted plants of the *R. ponticum* section and hybrids may be grown successfully in ordinary soil and in the less conspicuous parts of the garden. If planted when quite small at this season they will quickly become established and soon make fine bushes.

THE APIARY.

By CHLOE.

The season.—On the whole, the weather since September has been very mild and exceedingly wet. Some bees, on bright days, have been seen by the pools of water, and this is a sure sign that early breeding has commenced. No beekeeper should fail to examine the roofs of his hives to ascertain whether they have leaked. If water has reached the quilts, they should be removed and replaced by dry ones. In the event of severe frost, the damp quilts would become very cold, and, if the stocks were not strong, they would perish. The brood chamber must not be disturbed, and no overhauling must take place. When putting on dry quilts, a cake of candy may be slipped under the lower layer if there is any suspicion that the bees are short of food. When the cause of the leakage in the roof has been discovered, stop the crack, or whatever it may be, with white lead or putty, and paint it over with gold size, which will set quickly.

Dysentery is likely to make its appearance in any hives which are neglected. When the excrement is found on the alighting boards and hives, this is a sure sign that the bees are suffering from this disease, for, in a healthy state, these insects only void their faeces whilst on the wing.

Honey.—Some beekeepers have still extracted honey on hand, and this will be in a granulated state. It must be remembered that to heat honey above 120° is to rob it of some of its delicate aroma, and this will not be agreeable to customers. It will be well to melt the honey by placing the tin in another larger tin containing a small quantity of water, and then place the two over a slow fire, and, as the honey liquefies, stir it well with a wooden spoon.

Apiary requisites.—Those who intend to do their work thoroughly during the year should overlook their stock of requisites, make out a list of what they require, and place their orders with a reliable appliance maker; this will avoid disappointment later. Early in spring, frames can be fitted up with wired foundation, so as to be in readiness for early swarms. Shallow frames may be treated likewise. The sections may be placed in the racks, and all should be well wrapped up in newspaper to preserve them from dust and dirt.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and select photographs or drawings, suitable for reproduction, of gardens or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JANUARY 24—Surveyors' Inst. meet.

TUESDAY, JANUARY 25—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Miss E. Armitage on "Intensive Cultivation of Vegetables in Madeira.")

FRIDAY, JANUARY 28—

Southampton Roy. Hort. Soc. Annual Dinner.

SATURDAY, JANUARY 29—

Ann. Dinner of Soc. Franç. d'Hort. de Londres at Café Royal.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich 39°·3°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 19 (6 P.M.): Max. 45°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 20 (10 A.M.): Bar. 29·6; Temp. 41°; Weather—Dull.

PROVINCES.—Wednesday, January 19. Max. 45° S.W. Ireland; Min 37° Lincolnshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Herbaceous and Border Plants, Lilliums, Dutch Bulbs, &c., at 12; Roses, Fruit Trees, &c., at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY

Perennials, Hardy Bulbs and Plants, Lilliums, &c., at 12; Roses and Fruit Trees, at 1.30; Palms and Plants, Azaleas, &c., at 5, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY, THURSDAY AND FRIDAY—

Unreserved Sale of Nursery Stock and Greenhouse Plants, at the Royal Nurseries, Ascot, at 12, by Protheroe & Morris.

FRIDAY—

Choice Cyripediums, Cattleya Mossiæ and other Orchids, at 12.45, 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Stewart Island.

A quarter of a century ago Stewart Island was described as a "Southern Fern Paradise."

This designation it certainly deserves; for, within its small area, sixty-six species of Ferns have already been collected, and the botany of the island is still imperfectly known. This number is just about half that of the species recorded from the whole of New Zealand; but it is the abundance of many of the species that constitutes such a striking feature in the vegetation of the island. Among these Ferns are twenty species of "filmies,"—sixteen of *Hymenophyllum*, and four of *Trichomanes*—and four different kinds of tree Fern. Of the latter, *Dicksonia squarrosa* is extremely common, especially in gullies; and the elegant *Hemitelia Smithii* also occurs very frequently. Dr. Cockayne's Report,* brings our knowledge of the vegetation of the island up to date. Not everybody knows or remembers much about Stewart Island, the southernmost of the three principal islands of New Zealand. Formerly these island were named Northern, Middle and Southern; the last is now known as Stewart Island. The older nomenclature is employed in Hooker's *Handbook of the New Zealand Flora*, 1864; but at that date almost nothing

was known of the botany of Stewart Island. Now the official designations are: North, South, and Stewart Islands, the last being relatively quite small. It lies in 47° S. lat., about 15 miles from the nearest point of the mainland; and its area is estimated at 425,390 acres, or, roughly, four times that of the Isle of Wight. It is very hilly, or even mountainous, the highest peak, Mount Anglem, rising to 3,200 feet. The coast is very irregular, with deep indentations, the most important and picturesque being Paterson Inlet and Port Pegasus. Granite and diorite gneiss form the foundation of the island and most of the neighbouring islets; but the Solanders and other more distant islands are volcanic. The climate is very similar to that of South-western Ireland and some parts of western Great Britain, but at present the data are insufficient to admit of an estimate of the climatic conditions of different parts of the island or even to provide averages for the whole. The average annual rainfall in the island of Ulva, Paterson Inlet, for nine years, 1900 to 1908, was 63.64 inches, and the greatest fall, in 1906, was 77.44 inches. The average number of days in a year on which rain fell during the same period was 246, and in 1902 rain fell on 283 days. With regard to temperature, Dr. Cockayne is of opinion that it rarely reaches 70° Fahr., and rarely falls so low as 15° Fahr., and in some parts there is scarcely any frost. Hence, such characteristic, northern New Zealand plants as *Rhopalostylis sapida*, *Brachyglottis repanda*, and *Pomaderris apetala* thrive perfectly, when planted in the Island of Ulva. Apart from the large number of more or less rainy days, cloudy days are frequent. Consequently, such shade-loving trees as *Dacrydium cupressinum* and *Dicksonia squarrosa* flourish in the open, and the destroyed forest is soon replaced. Vegetation is luxuriant, but it is rich in individuals rather than in species. Dr. Cockayne enumerates about 400 species of flowering plants, of which only sixteen are peculiar to the island. The large Fern element has already been mentioned. Grasses and sedges are relatively numerous, yielding thirty-six and forty-seven species respectively. Twenty-one species of Orchids are enumerated, including the epiphytic *Dendrobium Cunninghamii*, *Earina mucronata*, *E. autumnalis*, and *Sarcocylus adversus*. Exigencies of space will not allow us to follow the author in his ecological notes and descriptions of plant-formations; but the extreme rarity of the genus *Cordyline*, and the total absence of *Nothofagus*—the southern Beeches, or Birches, as the early settlers named them—is noteworthy.

With respect to the scenery of the island, Dr. Cockayne says: "It is hard to speak of it without using a superabundance of superlatives. There is, indeed, no part but is delightful, and in many spots it is unsurpassed by the best that New Zealand as a whole can offer." In addition to its attractive flora, Stewart Island shelters a most interesting and, in some respects, unique bird fauna. Lovers of Nature will rejoice to know that the Government of the Dominion has taken steps to protect both birds and plants by reserving nearly two-thirds of the island, largely as preserves of the native fauna and flora, but partly as

"scenic reserves." The latter are almost entirely in the districts of Paterson Inlet and Port Pegasus. The whole of these reserves are open to the public, whereas the "sanctuaries" in the main islands are not.

With regard to the future of Stewart Island Dr. Cockayne predicts a great success for it as a pleasure resort for Australasia and the rest of the world, especially if the present regulations respecting the fauna and flora are continued and rigidly enforced. There is no doubt that it would prove an attractive spot, for the rainy, sunless days are no drawback but an attraction to many who live in regions of continuous sunshine. Dr. Cockayne's report is a most interesting and valuable compilation, which can doubtless be obtained in this country from the High Commissioner for New Zealand, if not so easily from the booksellers.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees of this Society will take place on Tuesday, the 25th inst., at the Hall in Vincent Square. At 3 p.m. a lecture on "Intensive Cultivation of Vegetables in Maderia" will be given by Miss E. ARMITAGE.

—The Rev. W. WILKS, M.A., writes to us as follows:—"As the R.H.S. *Book of Arrangements* for 1910 will not be in the hands of Fellows and exhibitors until towards the end of the month, and in view of the nearness of the date, I should be much obliged if you would let it be known through the medium of your journal that the Society's spring bulb show is fixed for March 8 and 9, when special prizes are offered for forced Hyacinths, bulbs grown in moss-fibre, and for Amaryllis. You have already kindly permitted particulars of these competitions to appear in your columns, and they may also be found in the 'Notices to Fellows' issued in the last *Journal* of the Society, viz., vol. xxxv., Part II., page xciii., et seq."

A NEW SEED WAREHOUSE.—Travellers on the London and South-Western Railway cannot fail to have noticed the erection of a huge building just beyond Raynes Park station, on the down side. The building is a great warehouse, and is destined to become, to a large extent, the future house of the Holborn seed firm, Messrs. JAS. CARTER & Co. This firm has purchased some 20 acres of pasture land lying between Raynes Park and New Malden. Nearly the whole of this has been trenched by manual labour during the past winter. The ground has a frontage of some 300 yards to the railway. There is also a good frontage to the line leading to Kingston. The soil is a sandy loam on the surface, with, in some parts, a clay base. The warehouses appear to cover an area of about 2½ acres.

BEQUEST TO A GARDENER.—Among the bequests of Miss ELLEN MORRISON, who died on December 23, 1909, is one of a life annuity of £40 to her former gardener, Mr. GEORGE TIDBURY. Miss MORRISON, who was the sister of Mr. CHARLES MORRISON, whose death occurred on May 25, 1909, left estate the value of which, so far as is at present ascertained, is £975,000.

THE EXPLORATION OF BOLIVIA.—According to the Geneva correspondent of the *Times*, the Swiss Federal Government is about to despatch an expedition to Bolivia, in order to study the flora and fauna and climate of the unexplored regions of that country. The explorers, amongst whom are several British men of science, will leave for South America on July 1 of the present year.

*New Zealand: Department of Lands. Report on a Botanical Survey of Stewart Island. By L. Cockayne, Ph.D. (Wellington, N.Z.: John Mackay, Government Printer, 1909.) Price 2s. 6d.

MR. GEORGE FORREST.—Our readers will join us in wishing a prosperous journey to Mr. GEORGE FORREST, who sailed on Thursday last for China and Tibet on a collecting expedition on behalf of Messrs. BEES, LTD. Mr. FORREST's previous journeys in these regions have resulted in the introduction of numerous new species of plants of horticultural interest and value, among which we may mention particularly *Primula Littoniana*, exhibited at the last Holland Park Show, and illustrated in this journal, July 10, 1909. In breaking new ground, we may be sure that Mr. FORREST will enrich our introduced flora yet further, and that, when he returns three years hence, he will have made discoveries of no less importance than those which are already associated with his name.

PETER BARR MEMORIAL FUND.—We stated last week that the committee had decided to make an immediate appeal for subscriptions on behalf of this fund. The following is the text of the appeal: "Large numbers of Daffodil lovers having expressed a desire to see a fund raised for the purpose of commemorating the life and work of the late PETER BARR, V.M.H., the members of the Royal Horticultural Society's Narcissus Committee recently met to consider the matter. Various proposals were put forward, but those finding most favour were: The institution of a PETER BARR Memorial Medal to be awarded annually in connection with work among Daffodils; and the provision of a fund for the maintenance of an orphan through the medium of the Royal Gardeners' Orphan Fund. To carry out these proposals a general committee, consisting of the members of the Royal Horticultural Society's Floral and Narcissus Committees, was at once formed, with power to add to their number, and five members of each body were nominated to form an executive committee as follows:—Mr. WILLIAM MARSHALL, V.M.H., Chairman; Mr. HENRY B. MAY, Treasurer; Mr. J. T. BENNETT POË, M.A., V.M.H., Mr. W. CUTHBERTSON, J. P., the Rev. J. JACOB, Mr. WM. POUPART, Mr. CHAS. E. SHEA, Mr. WALTER T. WARE, Mr. R. HOOPER PEARSON and Mr. CHAS. H. CURTIS, hon. sec. PETER BARR's great work was among Daffodils, and he may be said to have created the British Daffodil industry; but he also took an active part in the improvement and introduction of Tulips, Hellebores, Michaelmas Daisies, Lilies, and other hardy flowers. He was one of the founders of the Royal Gardeners' Orphan Fund, and served on the committee of that charity for many years. In these and many other ways PETER BARR did so much to advance horticulture that the committee appeal confidently to the great flower-loving public for a sufficient sum to carry out the above proposals. Cheques and Postal Orders, crossed "London and Provincial Banking Co.," should be sent direct to the Treasurer, Mr. H. B. MAY, Stanmore, Chingford, Essex. Copies of this appeal for distribution among members of Daffodil and other floricultural societies will be gladly sent on application to the hon. secretary, C. H. CURTIS, Adelaide Road, Brentford, Middlesex.

DR. PETER MACOWAN, whose death occurred in December, at Uitenhage, South Africa, was formerly Government botanist at the Cape, a position he held from 1881 to 1905, when the post was abolished. PETER MACOWAN was born in Yorkshire in 1830. For some time he was Professor of Chemistry at Huddersfield College, but in 1862 he emigrated to South Africa to take up the position of Principal of the Shaw College at Grahamstown. Later, he became Professor of Chemistry at the Gill College, Somerset East. The degree of Doctor of Science was conferred upon him in 1902 by the Cape University. Dr. MACOWAN achieved excellent work in botanical exploration in South Africa.

KEW GARDENERS' SOCIAL EVENING.—The 13th annual social gathering of the Kew gardeners and their friends took place at the Boat House, Kew, on the 14th inst. The company numbered about 120, including many old Kewites. The room was decorated with Palms, flowering plants and festoons of evergreens. The proceedings included dancing, vocal and instrumental music and a whist drive. Prizes were presented to the successful card players by Mr. WATSON.

ARBOR DAY IN IRELAND.—The current number of the *Quarterly Journal of Forestry* contains a brief but interesting article on the ceremonies which took place under the auspices of the Irish Forestry Society in connection with the encouragement of "Arbor-day" planting. The date fixed last year was November 6, on which day a large gathering was held at Bray. His Excellency Lord Aberdeen, who was present, spoke emphatically on the needs of more extensive tree growing in Ireland and insisted on the advantages to be gained from both ornamental and economic planting.

THE LINCOLNSHIRE BEET-SUGAR COMPANY.—This company, the prospectus of which was issued recently, has now been formed, and will commence operations immediately. Its career will be followed with great interest by all connected with agriculture; for if this attempt to grow the Sugar Beet on a commercial scale in this country proves successful—and we see no reason why it should not—it is bound to lead to similar enterprises in other parts of Britain. When it is remembered that we import Beet sugar to the value of £18,000,000, it will be understood how desirable it is that Sugar-Beet cultivation should be given a full and extended trial.

THE RAINFALL IN 1909. No one needs to be reminded that the past year was a wet one, but Mr. MAWLEY's statement in our issue for January 8 that there was more sunshine in 1909 than is usual has caused some surprise. The year was cold, wet, and sunny; the two last terms appear almost contradictory, but Mr. MAWLEY's records in West Hertfordshire show that, whilst the rainfall was about $1\frac{1}{2}$ inch above the average, the sun shone for 18 minutes a day longer than is usual. Many gardeners keep a record of the weather, and, as usual, several have sent us the statistics of the rainfall in their districts. Mr. JAMES B. ALLAN, writing from Osberton Gardens, Worksop, informs us that the hottest day in those gardens was August 12, when the thermometer registered 84° in the shade; the coldest was December 21, when there were 27° of frost. The heaviest rainfall occurred on August 17, when 1.70 inches fell in 24 hours. The rainfall in these gardens for the year amounted to 27.26 inches, being 7.07 inches more than in 1908. November was the driest month in the year, when the rainfall was only .14 of an inch; December was the wettest with 4.45 inches.

Mr. WM. H. JENKINS states that at Wythenshaw Hall Gardens, Northenden, Manchester, the year's rainfall was an average one for the district. December was the wettest month, when rain fell on 24 days, to a total depth of 6.88 inches. On the 2nd of that month 1.13 inch of rain was recorded, this being the wettest day of the year. A severe hailstorm on July 23 caused much damage to fruit and other crops. The thermometer registered 87° on August 15, this being the hottest day. The lowest mean readings were taken on March 5 and December 21. Rain fell on 192 days, the total amount for the year being 35.13 inches.

Writing from Hill House Gardens, Harrow Weald, Middlesex, Mr. T. HUNTER states that

1909 was the wettest year since 1903. On each of 217 days .01 inch or more of rain fell, the total being 28.08 inches, or 2.44 inches above the average for 20 years. January, February, May, August, and November were all below the average in rainfall.

Mr. H. WILSON, The Gardens, Cole Orton Hall, Ashby-de-la-Zouch, has recorded a rainfall during the past season of nearly 7 inches in excess of that of 1908, although the number of rainy days was exactly the same in both years, viz., 180. The heaviest fall occurred on July 27, when 1.10 inch was registered. Although crops of all kinds were late, the yield in most cases was excellent, especially late Potatoes, which were but little affected by disease.

At Broadoaks Gardens, West Byfleet, Surrey, the most rain fell in September, when 4.23 inches were registered. The greatest fall during 24 hours occurred on September 17, the amount being 2.12 inches. Mr. LOWE describes February as the driest month, with only .35 inch rainfall on three days. The total fall for the year amounted to 27.47, distributed over 148 days.

The rainfall at Leigh Park Gardens, Havant, Hants., amounted to 37.71 inches, there being 94 wet days. October was the wettest month, the records giving 9.66 inches, while February was the driest, with only .33 inch. On December 21 exactly 2 inches of rain was registered.

More than 4 inches of rain in excess of 1908 have been registered at Dyrham Park gardens, Barnet. Mr. H. JUNIPER states that during the six years he has been engaged at Dyrham Park, frost has been registered during 10 months in each year. The coldest day last year was March 25 (26° of frost), and the hottest, August 31 (97°). The total rainfall amounted to 28.87 inches, October being the wettest month with 4.76 inches. The greatest rainfall in one day was 1.04 inch on July 28.

The rainfall at Shugborough Gardens, Stafford, during 1909 totalled 31.63 inches. The wettest month of the year, writes Mr. G. BENTLEY, was December, when 5.05 inches were recorded. The most that fell in 24 hours was 1.03 inch, on March 6.

A NEW FUNGUS-DISEASE OF PICEA.—Dr. BORTHWICK, lecturer on forest botany, University of Edinburgh, describes in No. 20, vol. iv., March, 1909, of *Notes from the Royal Botanic Garden, Edinburgh*, a new fungus disease of *Picea pungens*, a Conifer introduced into this country from Western North America. The fungus attacks the buds of the tree, arresting growth, or, if the infection is confined to one side, giving rise to a twisted shoot. The diseased buds are encased in a dense, black sheath, the surface of which is thickly dotted with spherical papillæ, each with a small opening at the top. These papillæ are the fructifications of the fungus which is a member of the Pyrenomycetes. The mycelium of the fungus runs between the cells of the cortex, at first as single threads, subsequently as dense strands of closely-woven hyphæ. The black sheath, which forms on the surface of a diseased bud, consists also of mycelial tissue, and contains the Pear-shaped fruit bodies (pyrenocarps), in which the ascospores are contained. As the latter ripen they are discharged from the asci, and extruded from the apical pore of the pyrenocarps. Each ascus contains four to six spores, which are of a dark brown colour, torpado shaped, and multi-septate. Dr. BORTHWICK refers the fungus to the genus *Curcubitaria* of the Sphaeriaceæ, and names it *C. piceæ*. The life-history of the fungus, which does not appear to be common, is illustrated by a series of excellent photographs.

GARDENING ON THE "UNDERGROUND."—With the desire of improving the amenities of travel, most railways offer annual prizes for the best-kept station gardens. The results please both passengers and porters, in addition to the other officials concerned. The District Railway, now that its tunnels have been purged of fumes inimical to horticulture, has also adopted a "competition for improved appearance of stations and adjoining railway premises." The necessary soil for the plots is to be provided, together with 5s. for the purchase of seeds, but "the person undertaking the cultivation may expend of his own money any additional amount which he pleases," and may also avail himself of the produce of the plot, if any. Vegetables must not be grown, "as the object of the cultivation is decoration." The sum of £20 will annually be distributed in prizes, which will be given for the best result on the line and the best result for men of each department. The special conditions and difficulties of each station will be taken into account in making the awards. The company is also desirous of making a display of evergreens and similar plants,

and cultivated Mushrooms and their varieties, and poisonous or worthless fungi, which are often mistaken for Mushrooms. A reproduction of the drawings, with descriptive text, is in course of preparation and will shortly be issued by the trustees in the form of a small museum guide.

THE SUSCEPTIBILITY OF JAPANESE LARCH AND WESTERN LARCH TO LARCH CANKER.

The ravages of the fungus *Peziza Willkommii*, the parasite responsible for Larch canker, have become so extensive that attention has been directed to the cultivation of other species of this tree in the hope that they might prove resistant to the fungus. In particular, Mr. H. J. ELWES, after considerable trouble, obtained a supply of seed of the West or Occidental Larch, and distributed it among arboriculturists in various parts of the country. Unfortunately, it appears from a report by Dr. BORTHWICK (No. 20, vol. iv., March, 1909, *Notes from the Royal Botanic Garden, Edinburgh*), that this species, *Larix occidentalis*, is, like the common Larch, susceptible to canker. Similarly, the

which he attributes primarily to frost. As the result of the action of frost, the second year's wood becomes diseased, and the young shoots above the diseased region die. The first symptoms are yellowing of the needles, loss of leaves by the leader, which generally takes on a dark red colour, and arrest of side buds and branches. The lower part of the tree remains vigorous, and throws up fresh leaders. The stem of the diseased tree becomes cankered, and an exudation of thin, bluish-white resin makes the cankers conspicuous. Later, the bark splits, exposing the wood, which may become covered with callus. Dr. BORTHWICK regards frost as the primary cause of the disease; but, finding that an ascomycetous fungus is always present in the diseased parts of the stem, he is disposed to think that the fungus may have something to do with the malady. He finds similar symptoms on young Douglas Firs from Perthshire.

ANNUAL FESTIVAL OF ROYAL GARDENERS' ORPHAN FUND.—The annual festival dinner of the Royal Gardeners' Orphan Fund will be held on Thursday, May 19. The Chairman for the evening will be Sir JEREMIAH COLMAN, Bart. We hope all interested in the fund will do their best to make the event a success.

PUBLICATIONS RECEIVED.—*United States Department of Agriculture, Bureau of Entomology.*—Bulletins: The Lesser Clover-Leaf Weevil, by F. M. Webster; The Euonymus Scale, by J. G. Sanders; Some Insects Injurious to Truck Crops, by F. H. Chittenden; The Slender Seed-Corn Ground Beetle, by W. J. Phillips. *Bureau of Plant Industry:* The Deterioration of Corn in Storage, by J. W. T. Duvel; A New Type of Indian Corn from China, by G. N. Collins; The South African Pipe Calabash, by David Fairchild and G. N. Collins; A Simple Method of Detecting Sulphured Barley and Oats, by W. P. Carroll; Origin of the Hindi Cotton, by O. F. Cook; Report of the Chief of the Bureau of Plant Industry for 1909, by B. T. Galloway; the Adulteration of Forage-Plant Seeds, by F. H. Hillman. (Washington: Government Printing Office.)—*Central Experimental Farm, Ottawa:* A Serious Potato Disease Occurring in Newfoundland, by H. T. Gussow. (Ottawa: Fisher.)—*The Journal of the Board of Agriculture.* January, 1910. (London: R. Clay & Sons.) Monthly price, 4d.—*The Agricultural Gazette of New South Wales.* December, 1909. Price 6d. (Sydney: W. A. Gullick, Government Printer.)—*The Agricultural Journal of the Cape of Good Hope.* Price 6d. (Cape Town: Cape Times, Ltd.)

PRIMULA SONCHIFOLIA.

THIS species is a charming Alpine plant, and is, perhaps, the finest blue-flowered of all *Primulas*.

It grows at an altitude of 11,000 to 13,000 feet, being almost the first plant to show on the disappearance of the snows. In many places I found groups of plants which had actually forced a passage through their icy covering; in such instances the surrounding white of the snow proved a perfect foil to the rich colouring of the flowers.

The scapes are not more than 3 inches to 5 inches high, and stout, each carrying from five to eight blooms; the fringing of the corolla segments is a distinct feature. At the time of flowering there is no appearance of foliage, the leaves being developed later. The flower-scapes arise from a number of large squame, which are densely covered with a rich, orange-coloured meal.

The species is locally common on many of the mountains of N.W. Yunnan; the plant loves moisture and shade, and grows most luxuriantly on the margins of Alpine scrub.

Judging from its altitudinal range, one would expect this plant to be one of the hardiest of Alpines, but, unfortunately, this is not the case. So far, it seems impossible to provide conditions exactly suitable under which most of these moisture-loving plants will thrive. G. Forrest.



FIG. 35.—*PRIMULA SONCHIFOLIA* GROWING WILD IN CHINA: FLOWERS BLUE.

in hanging baskets, &c., at underground stations, such as the Temple, and we are informed that it is prepared to receive offers from seedsmen and florists. *The Railway Gazette.*

THE BOTANICAL DEPARTMENT AT THE BRITISH MUSEUM.—Mr. HERBERT FULLER WERNHAM, B.Sc., has been appointed an assistant in the Department of Botany, British Museum, to fill the vacancy caused by the recent retirement of Mr. JAMES BRITTEN. Mr. R. H. BUNTING, who, since 1898, has been an attendant in the same department, has been appointed botanical collector to the Liberian Company, with which Sir HARRY JOHNSTON is associated. Mr. BUNTING's work will be to assist in a botanical survey of Liberia, mainly from an economic point of view, but his years of training at the Museum should enable him also to make useful observations from a purely botanical standpoint. The beautiful series of coloured drawings of British fungi by Mr. WORTHINGTON SMITH, which is exhibited in the public gallery of botany at the British Museum, has been supplemented by a similar set, illustrating field

same authority shows that the Japanese Larch (*L. leptolepis*), of which so much was hoped as a substitute for common Larch, is also attacked by the canker-fungus. Dr. BORTHWICK's observations, however, only apply to one or two plants, so that it is premature to say that these species are worthless. They may—as we hope—prove, at all events, less susceptible than the common Larch to this most serious pest.

FROST CANKER OF THE MENZIES SPRUCE (*PICEA SITCHENSIS*).

—The Menzies Spruce which was introduced by DOUGLAS in 1831, and which has been planted on a large scale, both in Great Britain and the Continent, is, according to Dr. Nisbet, next to the Larch and Douglas Fir, probably the most important coniferous timber tree ever introduced into Britain. It is, therefore, somewhat disconcerting to learn from the report of Dr. BORTHWICK, lecturer on forest botany in the University of Edinburgh (No. 20, vol. iv., March, 1909, *Notes from the Royal Botanic Garden, Edinburgh*), that many specimens of this tree grown in Ayrshire and Argyllshire have suffered during the past year from a disease

WEATHER AT ROTHAMSTED IN 1909.

THE meteorological records of the Rothamsted Experimental Station, Hertfordshire, for 1909, show that the year was characterised by cold and wet, with, upon the whole, a more than average amount of sunshine in this district. The cold was most marked during the five months, May to September, which includes most of the period of active plant growth. During these months the only spell of warm, seasonable weather was in the first half of August. The most unseasonably cold month of the year was June, which recorded 4.4° less than the average warmth extending over the past 50 years. The most unseasonably warm month was October, which recorded 3.3° above average.

There were 13 nights of frost in January, registering an aggregate of 72° . February, with 22 nights of frost, gave a total of 127.3° , the extreme of cold occurring on the 22nd and 23rd of the month, when 12.6° and 14.5° of frost were recorded respectively. March gave 14 nights of frost, totalling up to 76.4° . April, with nine nights of frost, registered a total of 17.2° . May recorded five frosty nights, giving an aggregate of 7.5° . From this data it is seen that the first five months of the year recorded the large total amount of 330.5° of frost.

The winter months of October gave, on three nights, an aggregate of 6.5° of frost. November, on 11 nights, recorded a total of 26.4° ; and December, with 12 nights of frost, gave a total of 58.4° . There were 19 falls of snow during the year; the greatest depth of about 6 inches occurred in March.

The following table shows the rainfall of each month for the past year at Rothamsted, with the average amount of rain for each month of the previous 56 years, 1853-1908, and the difference of 1909 above or below the average record:—

RAINFALL AT ROTHAMSTED, HERTS.

Months.	Rainfall 1909.	Average Rainfall of 56 years.	1909, Above or below the average (1).
	Inches.	Inches.	Inches.
January ..	0.8	2.34	- 1.58
February ..	0.43	1.79	- 1.36
March ..	3.4	1.85	+ 1.55
April ..	1.2	1.83	- 0.63
May ..	1.5	2.13	- 0.63
June ..	1.10	2.40	- 1.30
July ..	3.10	2.52	+ 0.58
August ..	2.4	2.64	- 0.24
September ..	1.94	2.41	- 0.47
October ..	5.19	3.15	+ 2.04
November ..	1.25	2.57	- 1.32
December ..	3.42	2.31	+ 1.11
Yearly Total ..	30.01	25.07	+ 4.94

(1) The sign in the last column (+) signifies above the average, and the sign (-) below the average.

The rain-gauge, which is one-thousandth part of an acre in dimension, stands 2 feet above the surface of the ground, and is about 420 feet above sea-level.

The above data shows a total rainfall of 30 inches against an average for the previous 56 years of 25 inches, being nearly 2 inches in excess.

Calculating these figures up to the acre, we find that, during the whole year, 3,031 tons of water have fallen on each acre of land, which is 195 tons of water in excess of the average. The total rainfall for the last three months of the year has exceeded the normal for the same period in the previous 56 years by 1.83 inch, which is equivalent to an excess of 41,402 gallons of water on each acre of land. Last year, at the same time, there was a deficiency of 76,197 gallons on each acre in the underground water supply of this district.

The next table shows the mean temperature in the shade for each month of the year 1909, with an excess or deficiency at the Rothamsted Station during the past 31 years, 1878-1908, also the number of hours of bright sunshine taken by means of a Campbell Stokes recorder for each

month, and the number of hours above or below the average record:—

MEAN TEMPERATURE AND BRIGHT SUNSHINE AT ROTHAMSTED, FOR THE YEAR 1909.

Month.	Mean Temperature.		Sunshine.	
	1909.	Above or below average.	1909.	Above or below Average.
	Degrees.	Degrees.	Hours.	Hours.
January ..	37.4	+ 0.7	76	- 23
February ..	35.6	- 2.7	93	- 22
March ..	38.3	- 2.6	60	- 51
April ..	47.4	+ 1.9	237	+ 71
May ..	50.8	- 0.6	297	+ 103
June ..	43.0	- 4.4	116	- 88
July ..	58.8	- 2.0	193	- 30
August ..	59.8	- 0.1	226	+ 22
September ..	53.8	- 2.1	109	- 53
October ..	51.5	- 3.3	87	- 19
November ..	40.3	- 2.3	91	- 32
December ..	39.0	- 1.2	59	- 16
For the year ..	47.1	- 0.8	1,652	+ 47

The mean temperature for the whole year was 47.1° , which is a little below the normal average, and is one degree less than last year.

tion of carbon from the atmosphere only occurs with suitable light and temperature.

The formation of seed especially requires heat, so that the development of the cereal grains in the past year was mostly defective.

The root crops, although they greatly depend upon a sufficiency of rainfall for their successful growth, yet need an average amount of sunshine to ripen the bulbs and to convert them into nutritious cattle food. This year the excessive rainfall of June, July and August caused an over-luxuriant growth of leaf, which the sunlessness of the five months June to October failed to ripen. J. J. Willis, Harpenden.

THE LATE SIR CHAS. W. STRICKLAND.

We have pleasure in giving a characteristic portrait of the late Sir Charles Strickland, Bart., whose obituary notice appeared in the *Gardeners' Chronicle* in the issue for January 8. The excellent portrait, for which we are indebted to the Hon. Mrs. Willoughby, shows the



THE LATE SIR CHARLES STRICKLAND

and one of his favourite Orchids (*Odontoglossum Rossi*) growing in pans carved by himself.

The bright sunshine shows seven months in excess and five months deficient. The sunniest month of the year was May, when the record of sunshine exceeded the average by 103 hours. The total sunshine for the year was 1,652 hours, being 47 hours in excess, and slightly above that of the previous year.

THE CROPS OF 1909.

It is probable that the very heavy rainfall of March was responsible for the growth of the Hay crops, and assisted the Wheat crops in making a successful start.

Previous to this it was a question whether large areas of Wheat would not have to be ploughed up for lack of a sufficient crop.

No large crop can be obtained without a sufficient amount of light and heat, as the assimila-

tion of carbon from the atmosphere only occurs with suitable light and temperature. A fine display of *Odontoglossum Rossi majus*, the plants being chiefly in Orchid pots carved by Sir Charles himself. *Odontoglossum Rossi*, *O. Cervantesii*, *O. citrosum*, and *Cattleya citrina* all flowered profusely in Sir Charles Strickland's gardens, the personal attention given to them by their owner accounting, in a large measure, for the success. A fine display of *Odontoglossum Rossi major* was shown at the back of one of the early specimens of *Crinum Moorei*, illustrated in the *Gardeners' Chronicle*, October 22, 1887, p. 499, from a photograph taken at Hildenley. The delights of gardening have rarely been demonstrated so clearly as in the case of this gentleman, who derived from his garden one of the greatest pleasures of his long life, which reached 90 years.

THE USE OF ARSENIC IN HORTICULTURE.

THE use of arsenic in horticulture is a practice of comparatively modern times. In recent years, commercial fruit-growers have used arsenate of lead in immense quantities as a spray fluid to combat the larvæ of the Winter, Umber and other moths.

The success of this operation is undoubted, and its use therefore is likely to increase rather than diminish. Arsenical weed killers are, of course, well known, and the recent facilities granted by the Sale of Poisons Act, of 1908, have permitted the purchase of this and other poisonous compounds from sources other than the chemist.

There is, however, one aspect which needs consideration, and that is the danger to live stock that may be incurred by the use of arsenical sprays in orchards and plantations. Some light is thrown upon this by a report by J. Rutherford Hill, Ph.D., in a recent number of the *Transactions of the Royal Botanic Society of Edinburgh*.

The author had brought to his notice a case of the sudden death of fowls on an estate in the south of Scotland, and an inquiry revealed that they had run on ground which had been treated with an arsenical weed killer some six months previously. This compound, which contained equal parts of arsenious oxide and sodium hydrate, effectually killed the weeds when applied, but some six months after a strong growth of grasses, mosses and various weeds were growing. A test of the surface soil revealed arsenic in some quantity, notwithstanding the fact that weeds were growing on it. Another case is mentioned where hens were poisoned by arsenic in weed killer, which was applied two years previously.

It is therefore evident that the poison is retained for some considerable period in the soil, and in a state which, though harmless to plants, is fatal to animals. The author suggests that it may form an insoluble compound with the iron present in the soil. A further point of much interest is that the presence of arsenic in certain quantities in the soil has little or no effect on plant life. It is well known that any alkaline carbonate, chloride or hydrate will kill weeds; common salt and washing soda are examples of easily procurable alkaline salts. Arsenic in aqueous solution is fatal to the exposed parts of plants, such as leaves and stems, but the roots have apparently no power of taking it up from the soil. The amount of arsenic which falls on the ground when large trees are sprayed must be very considerable, and it is at once obvious that the greatest care must be taken to prevent live stock from feeding beneath such trees. The use of arsenical weed killers is, in view of these experiences, no longer necessary, and gardeners who are also bird lovers can keep down weeds without endangering their feathered friends. There is at present no substitute for arsenical washes for the destruction of the various caterpillars, which in spring cause so much damage; but it will be seen how necessary it is to exercise the strictest care that no cattle are permitted under the trees for some long time after its application, and that birds should be kept entirely away from such orchards. *E. A. Bungard.*

NEW AMERICAN THORNS.

CRATEGUS INTEGRILoba, an illustration of which appears in the present issue, is one of a group which includes *Arnoldiana*, *canadensis*, *compta*, *Ellwangeriana*, *Laneyi*, *submollis*, and *tortilis* (see article on pp. 289, 308, vol. xlv., third series). They are much alike in stature and general appearance, promising to become large trees; their spines are similar, and, should they become plentiful enough for hedging purposes, barbed wire will no longer be required. None of them has flowered here yet, and so I cannot say anything as to flowers or fruit. *T. Smith, Noury.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE EFFECT OF GRASS ON TREES.—In so far as grass roots occupy the same level as the roots of young trees, help to dissipate moisture, exclude light and air from the soil, and induce a sour, acid-forming condition, they may be considered injurious to fruiting trees, and especially when the trees are young. Grass is specially injurious where it so shades the surface of soil as to promote the growth of moss, fungi, and the lower, souring types of bacteria in the soil. Most of our grasses are surface rooting, and we need to consider their in-

able mechanical, physical, and chemical changes, and it is usually by such means that sufficient activity is preserved to uncultivated soils. As grass prevents cultivation, it follows that the soil becomes stratified, and holds less food in an available form than such as is frequently worked. Fruit trees require a large proportion of comparatively loose and well-aerated soil. Forest trees have not this want, and the finest timber may be produced on dense and highly-mineralised soil. It would not be difficult to furnish lists of trees which will or will not "stand" grass, though, of course, a forest or orchard tree may be grassed in one soil and position and not in another. In a general way, surface-rooting trees should not be grassed, nor should such as are required to thrive



FIG. 37.—SPINES AND LEAF OF *CRATEGUS INTEGRILOBA*.

fluence as a covering, and what they withhold by preventing cultivation, rather than what they consume, or the direct chemical action of their roots. Permanent grasses add to the depth and richness of soil, and they are harmful in so far as they bring about a limited or one-sided food supply. Summed up, grasses affect tree growth by their chemical, physical, and mechanical action on soil: (a) the soil's chemical constituents may be increased, reduced, or altered by a grass crop; (b) grass may affect soil physically by altering its density, moisture, heat and air-holding powers; (c) mechanical movement and soil blending are retarded by grass crops. In so far as grassed land carries much insect life in the form of worms and other earth-borers, it may receive a liberal aeration and undergo consider-

on cold or undrained land. Loose and naturally porous soils are best able to support grass and a crop of thriving trees. Grass often helps old trees, or such as stand in over-exposed positions, by keeping the soil at an equable temperature, so that the roots are not weakened by an excess of heat or cold. Grassed orchards are often pointed to as yielding heavy crops; but they rarely give any direct return to those who form them, and the system is not sound or commendable. Where the orchard is grassed, there can be no proper control of the soil or the tree, and the orchardist should have absolute control of both. At one season grass may do no harm, even great good; whilst at another it may cause ruin. Grass leads to irregular root and head growth, and fosters dirt and disease, which

should be counted an offence on any estate. The points which may be raised on this subject are almost endless. The task of each man who works among trees is to make an adjustment of all the materials and phenomena which influence them; he will then discern the best method. *C. Bogue Luffmann.*

I have been frequently engaged in planting fruit trees on grass or meadow land in various parts of the country, and in doing this work it is common to hear the expressed wish of the owner that it should be kept as a grass orchard, as the appearance of bare soil around and beneath the trees proved an eyesore. A newly-planted orchard certainly may present a neater appearance when the turf is relaid over the roots and all finished off nicely. Those, however, who are tempted to follow this practice may handicap the newly-planted trees or bushes in after years, for they may either show a stunted growth or, on the contrary, growths that are excessively vigorous and unfruitful. In the first case, the roots may be robbed of nutriment by the excessive growth of rank herbage over them, and, in the second case, the fruit tree roots may strike down deeply in uncongenial soil far removed from the effects of sunshine. But the fact of allowing grass to grow round the stems is not really the one and only cause of evil results. It is rather in allowing the grass to attain a strong, rank swathe, and, further, in allowing it to remain uncut so as to partially rot or decay, forming a safe lurking place for injurious insects during winter, and eventually creating a sour rooting medium for the trees. It is not fair to compare old established trees growing on grass with younger ones. In the first instance the spread of branches, the firmness of the ground, and the number of strong feeding roots each tend to restrict undue growth of grass so far as branch and roots extend, and, being well established, the trees can take care of themselves. We have found it a good plan, when marking off the stations for each tree, to mow the grass as close as possible and pare off the sods as one would for relaying a lawn. It is common, we know, to place such parings in the bottom of the hole, but in many instances they serve even a better purpose if relaid on the surface, but grass-side downwards. In this way the covering forms a natural mulch, protecting the roots from frost and searching spring winds, and this is much better than a covering of fresh dung. Not the least advantage gained, however, is that the decaying turf encourages the formation of feeding roots near to the stem and surface. Roots naturally strike downwards in the course of time, but the more one can encourage them in the top spit, and the longer they can be kept there, the better it is for the cropping of the trees. *Richard Parker, Rudgwick, Sussex.*

"IS IT FROST OR DROUGHT?"—An exceedingly interesting subject is raised in your leader of last week under the above heading. The idea that the injury done to plants in frosty weather may be due to drought is new to me. However severe may be the frost and cold, cutting and withering the wind, yet the roots below the frost line cannot suffer from drought. If there be drought, it is not at the roots, but rather because the sap in the cells of the hard stems near the ground is frozen and sap or moisture cannot ascend into the stems above. Presumably, it is that fact which explains the reason why, if frosted plants are deluged with cold water above freezing point, and shaded from sunshine, they presently recover. But in the case of winter greens, for instance, when there has been a deep snow, and the stems and leaves have been covered several inches in height, the portions of leaves or stems exposed have been killed by frost. Such a case would seem to show that drought, after all, played a trifling part in producing the injury. If frosted plants are kept from the sunshine and watered, bathed, and restored to life once, but such restoration cannot follow after a second freezing, the first frost could not have been severe enough to burst the sap cells, as, were that so, growth would be beyond recovery. A second freezing of those cells, previously weakened, suffices to burst them, and death inevitably follows, in spite of shading and cold-water baths. It remains a moot question, therefore, as to whether the primary cause of death from frost is due to the bursting of the cellular tissue, which injury is beyond repair, or

to incapacity on the part of the root to supply moisture to the exposed part of the plants because the cells were frozen. Probably many persons would regard it as a wise provision of Nature that in hard weather the roots cannot flood the plants exposed to the weather with sap, but rather withhold it. That is, indeed, what we have been taught, that not only does plant sap remain dormant in cold weather, but that it thickens, and then becomes less liable to frost than is the case when more liquified. When we see green shoots on Roses or other plants, after the leaves, perhaps, have fallen, or with leaves still green and unripe, we regard them as liable to injury from frost, because fuller of liquid or active sap than is hard, mature wood. It may be assumed that evergreens are always full of liquid sap, because of the action of their large leaf area, in hard weather as well as in summer, yet many of them do not seem to suffer from drought, even when frozen very hard, as sometimes is the case. *A. D.*

A CAUTION!—I feel I ought to relate my recent experience with a liquid insecticide:—According to the instructions on the tin, I mixed a solution of 1 in 20 parts of water. Following our usual custom, when dipping and syringing, a large bath was used to economise the liquid. I took the precaution to carry out the instructions, viz., "When dipping for a length of time rubber gloves should be worn." An "Abol" syringe was worked by a man, while I held the plants over the bath. The work was carried on for about three hours in a plant stove; at the end of that time violent reaching sickness began, the pulse grew slow and very feeble, a dazed condition with chills, and severe pains at the stomach followed. As soon as a medical man arrived, warm water was ordered to be taken freely. This was rejected by the stomach almost immediately, and the process was kept up for some time. Eventually the sickness and pains subsided, the circulation improved, and the pulse became normal. The man who worked the syringe was similarly affected, but in a less degree. Considering the danger of inhaling the spray of this liquid insecticide, the greatest care should be exercised in their application to prevent serious results, and possibly loss of life. *Caution.*

LATE CHRYSANTHEMUMS.—Some of the varieties recommended by Mr. Molyneux (p. 11) and Mr. Rawlings (p. 21) do not succeed well in this locality. I have tested several varieties, and selected a few good ones for this district, and other places in the neighbourhood of manufacturing towns in Lancashire. The following varieties give good results if the buds are formed early in October and the plants kept outside as late as possible:—Niveum, Pride of Ryecroft, Chas. Longley, Violet Lady Beaumont, Tuxedo, Nellie Pockett, Guy Hamilton, Roi de Italie, Mrs. Greenfield, Mme. C. Nagelmackers, and Mr. H. Weeks. *J. Winchester, Windle Hall Gardens, St. Helen's, Lancs.*

WHY PLANTS ARE GREEN.—There is one sentence in your leading article with the above title (*Gardeners' Chronicle*, January 15), which seems to me a little obscure: "To meet the contingency of a shortage of radiant energy, the red Sea-weed devises a red pigment," in order to put the blue rays, so to speak, at the disposal of the chlorophyll. Since, however, the green colour of the chlorophyll has yellow and blue constituents, it can absorb the blue rays. I have shown how photosynthesis is best carried on by yellow, blue and clear light, while transpiration requires red, green (a minimum), and violet, in my paper.* Why should there be any additional pigment at all, for chlorophyll can absorb all the blue rays itself. Is it not more probable that the pigments (other than green) act as oxygen-carriers to the protoplasm of the Sea-weed? It is conceivable that oxygen may not be so easy of extraction from the water as from the air, as fishes are "cold" blooded in consequence of feeble respiration compared, say, with birds. The reader may be referred to *Gardeners' Chronicle*, March 27, 1909, May 22, 1909, and to *Révue Générale de Botanique*, vol. xxi., March, 1909, p. 124. *George Henslow.*

* "On Some Effects of Growing Plants Under Glasses of Various Colours" (*Journal Royal Horticultural Society*, 1893).

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

JANUARY 11.—*Present:* Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the Chair); and Messrs. A. Worsley, A. W. Hill, G. Gordon, J. Fraser, J. W. Odell, E. M. Holmes, W. E. Ledger, A. D. Michael, H. J. Veitch, W. Fawcett, W. Hales, R. Hooper Pearson, and F. J. Chittenden (hon. secretary).

Nomenclature of garden plants.—The Secretary reported that a recommendation on the nomenclature of garden plants had been drawn up and sent for the congress in Brussels in the spring.

Polygonum.—Mr. J. FRASER showed specimens of *Polygonum alpestre*, which was at one time naturalised at Kew, where it had grown for 30 years, but its habitat had been destroyed by the erection of the new bridge and the plant exterminated. He also showed specimens of *Polygonum amphibium*, showing the two forms which are sometimes recognised by botanists growing on one and the same roots.

Variation in Ferns.—Mr. CHITTENDEN showed a specimen of a variegated form of *Nephrolepis canaliculata* from Wisley, where Mr. BLAKE, the propagator, had noticed a solitary specimen among a batch of young plants in 1908. The plant was isolated and in 1909 produced spores, which were sown separately, and some 300 young plants were raised. Every plant showed the variegation in a greater or less degree, some more markedly than the parent, some less. The variegation was in no case particularly marked, but the case is interesting as an example of a sudden variation in kind being reproduced true, although the degree of development of the variation, which probably depends largely upon external conditions, varied in the different plants. He also showed a specimen of a congested form, which likewise reproduced the variation in every plant raised from its spores. The breeding true to a sudden variation does not appear to be at all uncommon, especially if care is taken to isolate the plants before the spores are gathered in order to prevent mixture of spores and possible crossing.

Variation in Bean seeds.—Mr. H. J. VEITCH showed a number of Bean seeds, the history of which is as follows:—In May, 1908, Mr. JAMES SCOTT, of The Glade Gardens, Ditton Hill, sowed seed of the dwarf Bean Plentiful. These are of a rather pale dun colour. After gathering Beans several times, the plants showed a tendency to climb, and subsequently reached a height of 5 feet. The flowers were pale heliotrope. After harvesting, the seed was found to have a dark testa, marked by light splashes. These seeds were sown in 1909, and produced plants reaching a height of 6 feet, and bearing foliage considerably larger than that of the ordinary Scarlet Runner, while the flowers were of three kinds—pure white, pale heliotrope, and brownish. The seed of this generation varied greatly in colouring, the following types being present:—White, with extremely pale veinings; purplish brown; pure black; reddish brown; pale pink, with brown streaks and splashes; dark greyish brown, with pale grey mottling; pale pink, with dark grey-brown streaks and splashes; dark dun, with whitish dots; dark red brown; dark grey, with whitish mottling; red brown, with whitish streaks and patches; and grey, with white dots and markings. The original coloured Bean does not appear to have been reproduced. The seed will be cultivated, and its behaviour followed. A probable explanation is that the crop was cross-pollinated in 1907, and segregation occurred in 1909. There is, of course, a possibility that crossing occurred also in 1908, as bees were present within a short distance, and other Beans were growing about 15 yards away; but Beans are usually self-pollinated.

Virescent Cyclamen.—Mr. FABUS, of Redlands Nursery, Emsworth, sent a plant of *Cyclamen* bearing rosettes of small, leathery, green leaves in place of flowers. All the flowers were modified in this way. No trace of similar malformations had been noticed in the strain before. It had been raised at Emsworth, and all the plants for seed purposes hand-pollinated. Mr. BOWLES and Mr. HILL took examples to endeavour to root the rosettes and note their subsequent behaviour.

Eriodendron anfractuosum.—Mr. F. H. SEED, of Mombasa, B. E. Africa, sent pods and seed of this wild Cotton tree, which grows abundantly in the neighbourhood of Mombasa. The trees bear when about four or five years old, and attain a height of from 40 feet to 70 feet, growing very quickly. The pods are about 3 inches in length, and when ripe burst open, so that the white cotton-like substance is set free and distributed by gusts of wind, carrying the seed with it. The cotton is beautifully soft and silky, but the fibres are not very long, and are probably unsuitable for spinning, but it is used for making life-buoys in Africa, and for a variety of other purposes in India, where the species also grows. The tree is valuable also for its timber. A few of the natives collect the pods and sell them to Indians in Mombasa, but it is probable that many other uses might be made of the material than at present.

Orchid hybrid between albinos.—Mr. THWAITES, Streatham Hill, showed a flowering plant of *Cattleya Gaskelliana alba* \times *C. Mendelii alba*. The flowers were not pure white, as in the parents (although they appeared to be so in the bud), but had a faint and very pleasing pearly pink flush over them. So far, two plants have flowered with the same character; others are in bud.

HORTICULTURAL CLUB.

"THE GARDEN OF THE EAST—CEYLON'S ISLE."

JANUARY 11.—After the usual monthly dinner of this club at the Hotel Windsor on the above date, Mr. Harry J. Veitch presiding, Mr. J. A. Alexander gave an interesting lecture on the above subject, illustrating his remarks by a number of lantern slides depicting the scenery and flora of Ceylon. The first slide, representing a map of the island, was utilised to show the three regions into which it is divided as regards the climatal and geological conditions which determine the culture of most of the products it yields. In the south the climate is very moist and warm, and large areas were marked out as devoted to the culture of rubber, while all round the coast there are dense belts of the Coconut Palm extending over some 830,000 acres. A slide showing a special group of Palm flowers and incipient fruits gave a striking idea of Nature's lavishness in the production of possible fruits as compared with the actual capacity of the tree to bring them to maturity. Dense panicles of many hundreds of incipient Coconuts resulting in the production of a dozen or two ripe ones.

In the centre of the island lies the mountain region, with an intermediate climate. The mountains are not very high, the loftiest summit of Adam's Peak only attaining some 8,000 feet. It is in this region that the Tea plantations, which form the chief staple of Ceylon's industry, are situated. Coffee, formerly largely grown, has been practically annihilated by the insidious leaf-disease, the spread of which it has been found impossible to resist.

The third region, the dry one, occupies the north of the island, and it is here that rich mines of sapphires, rubies and other precious stones are found to replace the plant-life which drought precludes from cultivation. Several illustrations relating to the rubber industry were interesting, and attention was drawn to the fact that rubber was obtained from trees of quite different orders, mostly from the *Ficus*, or Fig, tribe, which yielded Para rubber, but also from the *Manihot*, a close relative to the tree which produces tapioca; this yields the Ceara rubber of commerce. The Tea industry was illustrated by photographs of Tea-growing estates, of the plant itself, only the young leaves of which under 10 days old are utilisable, and the apparatus used for withering, rolling, firing and otherwise preparing them for the market. Cocoa is another staple product, and several slides showed its collection in the shape of large pods, containing a dozen or more so-called beans. The cultivation of many spices and other aromatic plants, Cinnamon, Cardamoms, Pepper, Vanilla, Camphor, Ginger, Nutmegs, &c., was illustrated. A giant Bamboo on the banks of a stream evoked particular admiration, so huge were the stems and so dense the wide-spreading crest of foliage that the comparatively tiny figure of a man

close by was hardly appreciable. Imagine a Bamboo rod 130 feet in length, which could be cut into sections big enough for large flower-pots or buckets, and a slight idea is obtained of what a bush of some hundreds of similar stems must look like. Some views taken in the celebrated gardens of Peradeniya were also very beautiful, as was a photograph of the inflorescence of the Talipot Palm, like an enormous bunch of white ostrich plumes 40 feet in height, independently of the stately tree trunk itself. In regard to rubber, a warning was given that 10 or 12 years are requisite to establish plantations ripe for gum production, while many recent projects have been based on a calculation of five or six years, and are, therefore, likely to fail owing to premature enfeeblement of the young trees.

ULSTER HORTICULTURAL.

JANUARY 13.—The annual general meeting of this society was held on the foregoing date in Ye Olde Castle Restaurant, Belfast. The Lord Mayor (Sir Robert Anderson, J.P.), occupied the chair.

After the notice convening the meeting was read and the minutes of the previous annual meeting adopted, the report was read by the secretary, Mr. J. MacBride. The following are extracts from the report:—The annual exhibition was held on November 9 and 10: on the opening day the attendance was one of the largest on record. The past show has touched the high-water mark in point of quality of the various exhibits. Receipts from all sources were £684 15s. 2d.; expenditure, £720 9s. 4d.; leaving a loss on the year's working of £35 14s. 2d. This is largely accounted for by the falling off in the number of special prizes.

Mr. David Allen submitted the financial statement, which set forth in detail the figures indicated in the annual report.

The Lord Mayor said, taking everything into consideration, the annual report was most satisfactory, and it must be encouraging to those who took an interest in the affairs of the society to find that each year was an improvement on its predecessor. He thought the last show held under the auspices of the society was one of the finest they ever had in Belfast, and he had had the privilege of being present at all, or almost all, the shows held since the foundation of the society. The society encouraged fruit-growing in Ulster, and he himself was once so attracted by the exhibition of fruit at their show that he promptly gave an order to Mr. Dickson for a number of trees, which, he was glad to say, were doing splendidly.

Mr. Alexander Dickson said the society was now at the end of 21 years of successful but very hard work. The society existed in order to place before the citizens of Belfast and the people of the province of Ulster high-class examples of horticultural produce which each one could emulate according to his ability and his means, and to instruct the farmers as to the best fruits and vegetables to cultivate and the best methods of doing so.

The report and statement of accounts having been adopted unanimously, the officers were next elected. Mr. David Allen was appointed hon. treasurer, Mr. Thomas Paul hon. secretary, and Mr. J. MacBride secretary.

BATH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

JANUARY 13.—A meeting of this association was held at the Oddfellows' Hall, Bath, on the above date; Mr. J. Milburn occupied the chair. Mr. Hayball, of the Bristol Gardeners' Association, read a paper on "Spring Bedding." The double-flowered *Arabic albidus*, said Mr. Hayball, is an excellent plant for spring bedding. *Aubrietias* come fairly true from seed, but they are best propagated by division of the roots, making the new beds in the autumn for the following year. Seed is best sown in the spring. Daisies are not used now so frequently as formerly. The *Myosotis* is an excellent flower for spring bedding. Some good varieties are *Victoria*, *Perfection* and *Star of Love*. They associate well with *Narcissi*, especi-

ally when they are planted with the white and single varieties. Pansies and *Violas*, with comparatively little attention, give a fine display in early spring and afterwards in autumn. The tufted *Violas* are especially useful. Few spring bedding plants show such range of colour as the *Primrose* and *Polyanthus*; seeds of *Polyanthi* may be sown in either May or April, the latter month being preferred. They should be kept in a cold frame and shaded from the hot sun when the seeds are first sown. As soon as they are large enough they should be placed in the open for some weeks before planting them in the beds.

YORK FLORISTS.

JANUARY 11.—The annual general meeting of the Ancient Society of York Florists was held on this date in the De Grey Rooms, York. The Lord Mayor of York (Alderman James Birch) presided.

The Secretary (Mr. Geo. F. W. Oman) submitted the annual report of the committee, which showed that the results of the year's working were highly satisfactory. The number of members was 654, as against 658 last year. The total receipts were £578 6s. 11d., and the expenditure £544 18s. 3d., leaving a balance of £33 8s. 8d., thus enabling the committee to pay off the adverse balance at the bank at the commencement of the year. The funds of the society now consisted of £100 on loan with the York Corporation and £1 0s. 11d. at the bank. The receipts for admission to the Chrysanthemum Show amounted to £237 6s. 9d., as against £236 in 1908 and £235 in 1907.

The report and balance-sheet were adopted.

On the motion of the Lord Mayor, Mr. Arnold Rowntree was elected president of the Society for the coming year.

The Secretary (Mr. Geo. F. W. Oman) had decided to retire after serving the society for 11 years.

The Lord Mayor said before proceeding to the election of a new secretary, he wished to move a vote of thanks to Mr. Oman for his excellent services to the society during the past 11 years. This was carried with great enthusiasm.

Mr. F. P. Rawling was proposed as the new secretary, but Mr. F. Raney moved as an amendment that the election of a secretary be deferred until an adjourned meeting of the society on the 25th inst., and that the matter be referred to a special committee, which would invite applications for the post and recommend a suitable candidate. This was carried.

A special committee was appointed to deal with the question:—Messrs. E. Allen, J. Archer, A. T. Pearson, and W. Todd.

The Executive Committee was elected.

NATIONAL CHRYSANTHEMUM.

JANUARY 17.—A meeting of the Executive Committee was held at Carr's Restaurant, Strand, on this date. Mr. Thos. Bevan presided. The Secretary announced that the Bury St. Edmund and the Lincoln Horticultural Societies had applied to be admitted in affiliation, and the requests were granted.

The draft report and balance-sheet for 1909 were passed for presentation at the annual general meeting, which will be held at 6.30 p.m. on February 7, at Carr's Restaurant.

The subject of shows during 1910 was discussed, and it was resolved that an early show be held in September, another on November 8, 9, and 10, and a third, together with a conference, on December 14. Details as to the places at which these shows will be held will be settled as soon as negotiations for the purpose are completed.

The Chairman announced that it was the President's desire that the Society should arrange a show at the Chrysanthemum exhibition to be held at the close of the Brussels International Exhibition in October. He appealed to the members to contribute flowers for a representative exhibit as at the Paris (1900) exhibition. Mr. Harman Payne was nominated as the society's delegate to the Horticultural Congress to be held in Brussels in April next.

Eight new members were elected.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JANUARY 20.—The 70th annual general meeting of the subscribers and friends of this charity was held at Simpson's Restaurant, Strand, on Thursday last, as these pages were passing through the press. The chair was occupied by Mr. Harry J. Veitch, treasurer and chairman of committee.

The annual report of the Institution for the past year was presented, together with the financial accounts. These being considered satisfactory, were adopted with enthusiasm. The officers for the ensuing year were next appointed, and other business connected with the management transacted.

At this stage the proceedings were adjourned, and scrutineers of the ballot were appointed to take the poll in connection with the election of 23 fresh pensioners, these being selected from 72 nominees. The poll closed at 4 p.m. with the following result:—

RESULT OF ELECTION.

	Age.	No. of Votes.
William Bush ...	76	3,526
Louisa M. Elphinstone...	62	3,227
Samuel Gilbey ...	65	3,029
George J. Barnes ...	64	3,018
Henry Sawyer ...	65	2,973
John S. Ball ...	81	2,932
Emma Barnard ...	63	2,873
William Chapman ...	80	2,786
William Ward ...	64	2,779
Henry Newman...	77	2,717
John Harding ...	70*	2,708
Thomas Chapman ...	72	2,691
Richard P. Sutton ...	69	2,599
Dugald Cowan ...	65	2,585
Annie Hawkins ...	61	2,584
Henry West ...	65	2,568
Henry Webber ...	71	2,492
Edwin Rattue ...	66	2,401
James Brown ...	75	2,390
William Rapley ...	66	2,345
George Clark ...	74	2,286
Alice Latimer ...	61	2,263
William J. Williams ...	41	2,261

Pensioners Elected after the Poll.

* Alfred H. Hunking.

* Eliza Cosnett.

† Fanny Bury.

* These candidates were elected by the privilege given the committee in Rule III., Clause 10.
† Mr. George Monro secured a year's pension for this candidate by making a gift of £10 in her favour.

Mr. Arthur W. Sutton kindly intimated his desire to give a sum of £20 in order that the most necessitous of the unsuccessful candidates might be placed on the funds, the selection to be left to the committee.

STIRLING AND DISTRICT HORTICULTURAL.

JANUARY 11.—The annual general meeting of this association was held on the above date in Stirling. Both the annual report and the financial statement were adopted. The members number 178. Eleven new members were admitted, and seven names were proposed for membership at the next meeting.

ROYAL CALEDONIAN HORTICULTURAL.

JANUARY 12.—The annual general meeting was held in Dowell's Rooms, George Street, Edinburgh, on the above date, Mr. J. W. M'Hattie presiding. The council, in their report, expressed regret that in the society's centenary year they could not record any substantial increase in the interest taken by the public in the exhibitions. There was a further falling off in the attendance at the spring show, and only a slight increase in that at the autumn show. Although the increase in the number of gardener members was gratifying, the council regretted the decrease in the other sections. The following office-bearers were elected:—Mr. J. Stewart Clark, of Dundas, president; Sir A. Oliver Riddell, vice-president; and Messrs. John Highgate,

The Gardens, Yester; David King, Murrayfield; and John Aitchison, Monkwood, Kilgraston Road, Edinburgh, councillors in the place of the three retiring members. Mr. M'Hattie moved: "That a remit be made to the council, with powers, to hold friendly conferences with the council or members of the Scottish Horticultural Association as to the future of both societies, and to report." As stated in the last issue, p. 41, a meeting of the Councils of the Royal Caledonian and Scottish Horticultural Societies was recently held, and Mr. J. W. M'Hattie, who presided, stated that the public support which both societies were receiving was not sufficient for them to properly carry out horticultural work in Scotland. If they could join forces it would be for the benefit of horticulture. If the new society were formed, he made the suggestion that life members of both societies be admitted, and the ordinary members of both societies at the rate at which they entered the respective societies. Mr. M'Hattie spoke of the advantage to horticulture in Scotland of one strong united society, and the motion was carried.

DEBATING SOCIETIES.

BRITISH GARDENERS' ASSOCIATION (LONDON BRANCH). At the meeting held on Thursday, January 13, Mr. A. W. Tidy, of Kew Gardens, gave a lecture upon the "Fertilisation and Restoration of Soils." A Bohemian concert is arranged for Saturday, March 19. The proceeds of the concert will be given to a London hospital.

BANBURY AND DISTRICT GARDENERS'. The fortnightly meeting of this association was held in the White Horse Hotel, Banbury, on Friday, January 14. The Mayor of Banbury, president of the association, occupied the chair. Mr. T. Sole, of The Nurseries, Banbury, read a paper on the "Cultivated Apple." The essayist dealt with the history of the Apple from the earliest times. He gave illustrations of, and remedies for, the different diseases of this fruit. In a competition for culinary and dessert Apples there were 13 entries. The first prize for six culinary varieties was awarded to Mr. D. E. Flower, Wroxton; and for six dessert kinds to Mr. W. Boss, Grimsbury. Following this competition, a short discussion took place, and questions were answered by Mr. T. Sole. After passing the usual vote of thanks, the meeting was brought to a close.

AIGBURTH GARDENERS'. About seventy members and visitors were present at the first meeting of this newly-formed society held on January 11 at the People's Hall, Sefton Park, Liverpool. A paper was given by Mr. George Haigh, Highfield Gardens, Woolton, his subject being "Winter-flowering Carnations." After the paper was read, Mr. C. A. Young, West Derby, gave many hints in producing flowers and plants for market. Mr. W. P. Wethered, vice-president, occupied the chair. The next meeting will be held on February 1, when Mr. R. G. Waterman, of Woolton, will give an essay on "Soils and their Treatment."

READING GARDENERS'.—The annual general meeting was held in the Abbey Hall, Reading, on Monday, January 10. There was a good attendance of the members. The president (Mr. Alderman Parfitt) occupied the chair at the opening of the proceedings, but later Mr. Leonard Sutton presided. After the minutes of the last annual meeting had been read and confirmed, the committee's report and financial statement for 1909 were presented and adopted. The election of officers for 1910 was proceeded with: Mr. T. Judd being appointed chairman, Mr. F. Townsend vice chairman, and Mr. L. Castle hon. secretary. The committee and other officers were appointed. The balance sheet showed a satisfactory condition of affairs, and subscriptions for 1910 were voted as follow:—Royal Horticultural Society, £2 2s.; Royal Gardeners' Orphan Fund, £3 3s.; Gardeners' Royal Benevolent Institution, £2 2s.; Reading Horticultural Society, £1 1s.; Royal Berkshire Hospital, £1 1s.; University College, Reading, £3. It was decided to hold an annual tea and social gathering.

BRISTOL AND DISTRICT GARDENERS'.—A meeting was held on January 13, at St. John's Parish Rooms. Mr. S. Shaddick presided. Mr. J. Basham, junior, a representative of the Newport Gardeners' Association, gave a paper on "The Pleasures of a Garden." The lecturer gave reminiscences of his travels in various parts of the country. He said that all alike could share in the pleasures derived from a garden.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. E. C. WICKENS, for 4½ years Gardener to E. M. SPROT, Esq., and 13 months in the gardens of E. S. WITMORE-SITWELL, Esq., at Northbrook, Farnham, Surrey, as Gardener to C. BAYER, Esq., Tewkesbury Lodge, Forest Hill, S.E.

Mr. CHARLES ABBOTT, for the past 10 years Gardener to the Rt. Hon. the Earl of CARYSFORT, K.P., Elton Hall, Peterborough, Huntingdonshire, as Gardener to W. M. CAZALET, Esq., Fairlawn, Tonbridge, Kent.

Mr. A. CHEESEMAN, late of Highcroft Gardens, West Hoathly, as Gardener to A. N. BLOCK, Esq., Manor House, West Hoathly, Sussex.

MARKETS.

COVENT GARDEN, January 19.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia longifolia, p. dz. bunches...	9 0-12 0	Lily of the Valley, p. dz. bunches...	8 0-10 0
— de alba (mimosas), per doz. bunches...	9 0-12 0	— extra quality...	12 0-15 0
Azalea, Ghent, per bunch...	0 9-1 0	Marguerites, p. dz. bunches white and yellow...	3 0-4 0
— Fielden, p. dz.	4 0-6 0	Mignonette, per dozen bunches...	3 0-4 0
Bouvardia...	4 0-6 0	Narcissus Paper White, per dz. bunches...	2 0-3 0
Carnations, p. doz. blooms, best...	2 0-3 0	— Soleil d'Or...	2 0-3 0
— second size...	1 6-2 0	Odontoglossum crispum, per dozen blooms...	2 0-2 6
— smaller, per doz. bunches...	12 0-18 0	Pelargoniums, show, per doz. bunches...	4 0-6 0
Camellias, per doz. blooms...	1 6-2 6	— Zonal, double scarlet...	6 0-8 0
Cat eyes, per doz. blooms...	12 0-14 0	Richardia africana (Calla), p. doz. bunches...	2 0-3 6
Daffodils, best, per doz. bunches...	6 0-9 0	Roses, 12 blooms, Niphetos...	1 6-2 6
— seconds...	4 0-6 0	— Bridesmaid...	3 0-4 0
— double, per dz. bunches...	5 0-6 0	— C. Testout...	3 0-4 0
Eucharis grandiflora, per dozen blooms...	4 0-6 0	— Kaiserin A. Victoria...	2 0-4 0
Gardenias, per doz. per bunch...	3 0-4 0	— C. Metmet...	3 0-4 0
Heather (white), per bunch...	0 4-0 6	— Liberty...	4 0-8 0
Hyacinths, Roman, per doz. bchs.	9 0-12 0	— Mrs. Chateaufort...	3 0-6 0
Lapageria alba, per dozen blooms...	2 0-3 0	— Mrs. J. Lang...	2 0-4 0
Lilac (French), per bunch...	4 0-5 0	— Roman...	4 0-6 0
Lilium anatolicum, per bunch...	2 0-3 0	— The Bride...	4 0-5 0
— longiflorum...	2 0-3 0	Spiraea, p. dz. bchs.	2 0-4 0
— laetiflorum...	1 6-2 6	Statice, p. dz. bchs.	3 0-4 0
— rubra...	1 6-2 6	Tuberose, per dz. blooms...	0 3-0 4
— album...	1 6-2 0	Violets, per dozen bunches...	2 0-3 0
		— Parma...	4 0-5 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches...	6 0-9 0	Ferns (French)...	0 6-0 9
Asparagus plumosus, long trails, per doz. bunches...	8 0-12 0	Galax leaves, per doz. bunches...	1 6-2 0
— medium, doz. bunches...	12 0-18 0	Hardy foliage (various), per dozen bunches...	3 0-9 0
— Sprenger...	0 9-1 6	Ivy-leaves, bronze...	2 0-2 6
Berberis, per dozen bunches...	2 6-3 0	— long trails per bundle...	0 9-1 6
Croton leaves, per bunch...	9 0-12 0	— short green, per dz. bunches...	1 6-2 6
Cycas leaves, each...	1 0-2 0	Moss, per gross...	4 0-5 0
Ferns, per dozen bunches (English)...	2 0-3 0	Myrtle, dz. bchs. (English), small-leaved...	4 0-6 0
		— French...	1 0-1 6
		Sanilax, per dozen trails...	6 0-8 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Ampelopsis Veitchii, per dozen...	6 0-8 0	Euonymus, per dz., in pots...	3 0-8 0
Aralia Sieboldii, per dozen...	4 0-6 0	— from the ground...	3 0-6 0
— larger specimens...	9 0-12 0	Ferns, in thimble...	8 0-12 0
— Moseri...	4 0-6 0	— per 100 and large 60's...	12 0-20 0
— largest...	12 0-18 0	— in 48's, per dozen...	4 0-6 0
Araucaria excelsa, per dozen...	12 0-30 0	— choicer sorts...	8 0-12 0
— large plants, each...	8 6-5 0	— in 32's, per dozen...	10 0-18 0
Aspidistra, p. dz., green...	15 0-24 0	Ficus elastica, per dozen...	8 0-10 0
— variegated...	30 0-42 0	— repens, per dz...	6 0-8 0
Asparagus plumosus naus, per dozen...	9 0-15 0	Genistas, per dz...	10 0-12 0
— Sprenger...	9 0-12 0	Grevilleas, per dz...	4 0-6 0
— tenuis...	9 0-12 0	Hyacinths, per dz. pots, 3 in a pot...	9 0-12 0
Azaleas, per doz.	30 0-42 0	Isolepis, per dozen...	4 0-6 0
Begonia Gloire de Lorraine, p. dozen...	12 0-18 0	Kentia, Belmoreana, per dozen...	15 0-24 0
Chrysanthemums, per doz.	8 0-12 0	— Fosteriana, per dozen...	18 0-30 0
Cinerarias, per dozen...	6 0-12 0	Liatris pycnostachya, per dozen...	15 0-21 0
Clematis, per doz.	8 0-9 0	Lilium longiflorum, per dz.	18 0-30 0
Cocos Weddelliana, per dozen...	18 0-30 0	Lilium lancifolium, per doz.	18 0-30 0
Crotons, per dozen...	18 0-30 0	Lily of the Valley, per dozen...	18 0-30 0
Cyclamen, per doz.	8 0-12 0	Marguerites, white, per dozen...	6 0-9 0
Cyperus alternifolius, dozen...	4 0-5 0	Mignonette, per dz.	6 0-8 0
— laxus, per doz.	4 0-5 0	Poinsettias, p. doz.	9 0-18 0
Daffodils, per doz.	6 0-8 0	Sagittaria, p. doz.	4 0-6 0
Dracenas, per doz.	9 0-24 0	Solanums, per doz.	6 0-9 0
Erica gracilis, per dozen...	10 0-15 0	Spiraea japonica, per dozen...	6 0-9 0
— hyemalis...	9 0-15 0	Tulips in boxes of 24...	1 6-2 0
— small plants...	3 0-5 0		

Fruit: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Apples Newtown (U.S.), per barrel ... 18 0-25 0	Grapes (Almeria), per barrel ... 14 0-20 0
— (Nova Scotia), per barrel ... 15 0 16 0	Lemons, box: — Palermo, 300 ... 9 0 12 0
— Kingston Pippin ... 15 0 16 0	— 360 ... 9 0 11 6
— Benheim Pippin ... 15 0 17 0	— (Naples), case ... 14 0 18 0
— King of the Pippins ... 15 0 17 0	Limes, per case ... 3 0 —
— (English), per bushel ... 4 6-6 0	Lyc es, per box ... 1 6-1 0
— Peasgood's Nonesuch ... 4 6-6 0	Nuts, Almonds, p. bag ... 36 0 42 0
— Annie Elizabeth, p. bushel ... 5 0-6 0	— Brazil, new, per cwt ... 32 0 36 0
— Alington Pippin ... 3 0-4 0	— Barcelona, bag ... 32 0 33 0
— Bramley's Seedling ... 4 6-6 0	— Cob, per lb. ... 0 3 0 3 1/2
— Dumelews's Seedling (Welington) ... 3 6-5 0	— Cocumans, 100 ... 10 0 14 0
— Lane's Pince Albert ... 5 0-5 6	— Walnuts (French), per bag ... 5 0-5 6
— Lord Derby ... 3 6-4 6	— Chestnuts (Rondor), per bag ... 6 0-7 0
— Cox's Orange Pippin, 1/2 sieve ... 5 0-8 0	— (Italian), per bag ... 15 0 17 0
— Newtown Pippin, per case ... 11 0-14 0	Oranges: — Californian Navel, per box ... 11 0-12 0
— Oregon ... 9 0 11 6	— Jaffas, per box ... 7 0-8 0
— Californian ... 12 0 18 0	— Dina, per case (420) ... 10 6-15 0
Apricots (Cape), per case ... 4 0 6 0	— Valencia, per case (420) ... 8 6 12 0
Avocado Pears ... 5 0 10 0	— (Almeria), case ... 10 0-13 0
Bananas, bunch: — Doubles ... 5 6-6 0	— Jamaica, per case (176) ... 9 0-10 0
— No. 1 ... 5 6-6 0	— 200 ... 9 0-9 6
— Extra ... 7 0-8 0	— Messina Bitters, per box ... 5 0-6 0
— Giant ... 9 0-11 0	— Mandarin, per box ... 0 7-10 0
— Red coloured ... 4 6-6 0	— Tangerine, per box ... 0 9-1 0
— Red Doubles ... 8 0-9 0	Peaches (Cape), per case ... 4 0-8 0
— Jamaica ... 5 0-5 6	Pomegranates, per case ... 6 6-7 6
— 1/2 c. per doz. ... 0 6-1 0	— per box ... 2 3-2 6
Cranberries, case ... 6 0-8 0	Pears (Californian): — Oregon Wit Nelis, per case ... 11 0-15 0
Custard Apples ... 4 0 6 0	— Easter Beurte, per case ... 8 0-9 0
Grape Fruit, case ... 8 0-10 0	— Catillac (Dutch), per basket ... 2 0-2 3
Grapes, per lb.: — Gros Colman ... 0 9-1 3	Persimmons, per box (12) ... 1 0 —
— English Hambros ... 0 5-1 0	Pineapples, each ... 3 0 4 0
— Alicantes ... 0 9-1 3	— (Natal), per dozen ... 4 0 6 0
— Muscat of Alexandria ... 0 10-2 0	Plums, per case ... 5 0 —
— Canon Hall, per lb. ... 1 0-2 6	
— Gros Colman (sev) ... 0 8-10 10	

Vegetables: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Artichokes (Globe), per dozen ... 1 6-1 9	Mushrooms, per lb. ... 0 6-0 8
Asparagus, Paris Green, bundle ... 3 6-4 0	— broilers ... 0 5-0 6
— Sprue, bundle ... 0 8-0 9	Mustard and Cress, per dozen pun. ... 1 0 —
Beans (French), boxes ... 1 0-1 3	Onions (Lisbons), per box ... 5 0-6 0
— Madeira, per basket ... 3 0-5 0	— (Dutch), p. bag ... 3 0-3 6
Beetroot, per bushel ... 1 3 2 0	— pickling, per bushel ... 3 0-4 0
Cabbages, p. tally ... 4 0-5 0	— Valencia, per case ... 5 0-6 0
Cardoons (French), per dozen ... 8 0-10 0	Parsley, 1/2 sieve ... 3 0 —
Carrots (English), dozen bunches ... 2 9-3 0	Potatoes (English), per bag ... 2 6-4 6
— per bag ... 2 9-3 0	Rhubarb (forced), doz. bundles ... 0 8 0 10
— marrowed ... 2 0 2 6	Radishes (French), per doz. bunches ... 1 3-1 6
Cauliflowers, tally ... 1 6-5 0	Seakale, per dozen punnets ... 8 0 12 0
— Italian, basket ... 1 6-1 9	Spinach, 1/2 sieve ... 2 6-3 0
Celeriac, per doz. ... 1 6-2 6	Stachys tuberosa, per lb. ... 0 3 1/2 —
Chicory, per lb. ... 0 3 0 3 1/2	Tomatoes: — Teneriffe, per package ... 10 0-14 0
Cucumbers, p. doz. ... 7 0 9 0	— Turlops, bag ... 2 0 3 0
Endive, per dozen ... 1 3-1 9	Watercress, p. flat ... 4 0-6 6
Horse-radish, foreign, new, per bundle ... 1 0 1 1	
— 12 bundles ... 12 0 —	
Leeks, 12 bundles ... 1 0-1 3	

REMARKS.—There has been a fair quantity of English Bramley's Seedling Apples in the market; and these have sold for satisfactory prices. Consignments of Apples from America have been large: they are selling cheaply. Larger quantities of Navel Oranges have been received; the quality of the fruit is very fine. Messina Bitter Oranges are obtainable. English-grown Gros Colman Grapes are a fair trade, and those from Guernsey are also making good prices. Canon Hall Muscat is practically finished for the season. Cape Plums, Peaches and Pears are of fair quality; the demand is medium. The Rhubarb trade is very quiet. Prices for Pineapples are firm. Vegetables are slightly cheaper; the market is well supplied with green vegetables. Seakale is especially plentiful. Trade generally is quiet. *E. H. R., Covent Garden, Wednesday, January 19, 1910.*

Potatoes.

per cwt.	per cwt.
Bedfords ... s.d. s.d.	Lincolns ... s.d. s.d.
Up-to-Date ... 3 0-3 6	Up-to-Date ... 3 3-4 0
Blacklands ... 2 6-2 9	French Queen ... 3 3-3 9
Dunbars ... 5 6 5 8	Royal Kidney ... 2 9-3 0
Maincrop ... 4 6 5 0	Maincrop ... 4 0-4 3
Up-to-Date ... 2 6-3 0	King Edwards ... 3 0-3 6
Evergood ... 3 0-3 3	Kents: — May Queen ... 3 0 3 6
Sharpe's Express ... 3 0-3 3	Up-to-Date ... 3 6-4 0

REMARKS.—Trade only fair, with larger arrivals than last week. *Edmond J. Neesham, Covent Garden and St. Pancras, January 19, 1910.*

COVENT GARDEN FLOWER MARKET.

Daffodils can now be obtained in several varieties. Narcissus obvallaris comes in first, next Trumpet Major, which is followed by Henry Irving; others that may be had are Telamonius plenus (Double Van Zion), Princeps, Golden Spur, and Sir Watkin. The prices for Daffodils have been fairly well maintained. Tulips are abundant, some of the spring flowering varieties are already seen; the double yellow Couronne d'Or is one of the best; Couronne des Roses is another fine double variety. Duc van 't Hol is still obtainable. Lily of the Valley is seen on almost every day of the year in Covent Garden, and the same is true of Liliums and Roses. In former times, when there was a break in their season, they were more appreciated. Roses of best quality have been rather scarce, and their prices have advanced, but some growers will soon have flowers of the spring crop. Carnations continue to be abundant. Crimson and scarlet varieties sell better than the white ones. There are too many blooms of Enchantress, which is grown by almost all the nurserymen. Blooms of Lilium longiflorum are plentiful, but many of them are not of the best quality. The finest flowers are worth from 4s. to 5s. per dozen, but many Lilies are sold at 2s. per bunch. Richardia africana has been very fine, but supplies have been larger than the demand. They are known in the market as Arums or Callas. Azalea Fielder is offered at low prices, but its value will advance as soon as the white Chrysanthemums become scarce. Double scarlet Pelargoniums have been making fairly good prices. Roman Hyacinths are slightly cheaper than usual. Violets have bloomed more freely since the weather turned milder. The English Princess of Wales variety is very fine, also The Kaiser. French Parma Violets are good; the ordinary blue Violets are bright in colour, but wanting in scent. Both white and mauve Lilacs are good; there are some very good spikes from English nurseries. The various Acacias (Mimosa) are very fine. French Roses are not quite so good as they were earlier in the season.

P. L. PLANTS.

In flowering plants Indian Azaleas are a leading feature, but some of the plants are not well flowered. Ericas include E. gracilis, E. hyemalis, E. melanthera, and E. ovata, which resembles E. gracilis, with the exception that it is more erect in habit; the plants flower freely, and if the blooms were of better colour the plant would be very useful. Good Liliums in pots are rather scarce. Daffodils in pots are good; but they have not much demand. Hyacinths planted three in one pot may be had in white, pink, and blue varieties. White Roman Hyacinth is very useful. Genistas are improving in quality. Cyclamens are only fairly good. There is still plenty of Bouvardias of the Gloire de Lorraine variety. Growers should not neglect Begonia Patrie, a new variety with coral red flowers produced in profusion; it flowers well in small pots. There are still some fairly good Chrysanthemums. Amongst foliage plants Ferns of all sizes are plentiful. Nephrolepis Todeoides and other plumose varieties are extensively grown for market, but N. exaltata remains a favourite. Pteris tremula, when several plants are grown in one pot, meets with a good demand. P. cretica major also sells freely. Asplenium biforme and A. nidus are both good. A. biforme has a greater demand than formerly. There is very little demand for Adiantums; Phlebodium (Polypodium) aureum sells better. Supplies of Palms in all sizes are good. Kentia Belmoreana does not make such good prices as K. Fosteriana, although the reverse was true some years ago. Seeds of K. Fosteriana are very dear. Lotania borbonica has been making better prices than formerly. Aspidistras do not sell readily. Aralia Sieboldii and the variety Moseri are seen in 5-inch and 6-inch pots. Funkia variegata is very pretty, and makes a good market plant. Euonymus and various hardy shrubs fill many stands. *A. H., Covent Garden, January 19, 1910.*

SCHEDULES RECEIVED.

Leicester (Abbey Park) show, to be held on Tuesday and Wednesday, August 2, 3. Hon. secretary, Mr. J. Staynes, Town Hall, Leicester.

Southampton Royal Horticultural Society's annual report for 1909, and schedule of the summer Carnation and autumn exhibitions, to be held on July 5, 6; July 27; and November 8, 9, respectively. Secretary, Mr. C. S. Fudge, 7, Silverdale Road, Archers Road, Southampton.

CATALOGUES RECEIVED.

SEEDS.

KENT & BRYDON, Darlington.
AUSTIN & McALEER, 89, Mitchell Street, Glasgow.
THOMAS KENNEDY & CO., Dumfries.
McHATTIE & CO., Northgate Street, Chester.
G. A. BUNTING & CO., Bucknall Street, New Oxford Street, London.
E. P. DIXON & SON, LTD., Hull.
WM. FELL & SON, Market Place, Hitchin, Herts.
WILLS & SEGAR, Onslow Crescent, South Kensington.
BARR & SONS, King Street, Covent Garden, London.
ROWNTREE BROS., Clarence Park, St. Albans.
GEO. COOLING & SONS, Bath.

MISCELLANEOUS.

WILLIAM COOPER, LTD., 761, Old Kent Road, London—Horticultural and Poultry Appliances (Sale list).
STUART LOW & CO., Bush Hill Park, Enfield—Roses; Fruit Trees.

FOREIGN.

FRIEDR. C. POMRENCKE, Altona (Elbe), Germany—Seeds and Plants.
W. ATLEE BURPEE & CO., North Fifth Street, Philadelphia, U.S.A.—Seeds.
J. LAMBERT & SON, Trier, Germany—Seeds and Plants.
HAAGE & SCHMIDT, Eifurt, Germany—Seeds and Plants.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending January 19.

The fourth warm week in succession.—During the past week there has not been a single cold day and only one cold night. On three consecutive days the highest reading in the thermometer screen exceeded 50°, and on the warmest night the exposed thermometer did not fall below 38°, which is 11° warmer than the average minimum for the middle of January. The ground is at the present time 2° warmer at 2 feet deep, and 3° warmer at 1 foot deep, than is seasonable. Rain fell on four days, the total amounting to less than half an inch. On the morning of the 17th there were alternate falls of rain, sleet, and snow. Since the year began little more than three quarters of an inch of rain has fallen. There are still small quantities of rainwater coming each day through both percolation gauges. The sun shone on an average for 1 hour 50 minutes a day, or for a quarter of an hour a day longer than is usual at this period in January. The winds have been rather high throughout the week, and have come almost exclusively from some point between south and west. There was about a seasonable amount of moisture in the air at three o'clock in the afternoon. *E. M., Berkhamsted, January 19, 1910.*

Obituary.

ROBERT SMITH.—This gardener died on the 11th inst., at the age of 72 years, from an attack of influenza. Deceased was gardener to E. E. Pearson, Esq., Brickendonbury, Hertford. Previous to taking over the management of the Brickendonbury Gardens, Mr. Smith filled the position of head gardener at Presdales, in Hertfordshire. At both places he became well known as a first-rate cultivator, and was particularly successful in the growing of hardy fruits, which he showed with success at the Hertford horticultural exhibitions. Having been associated with gardening all his life, he had a fund of recollections connected with horticulture. The funeral took place in the old churchyard of All Saints, Hertford.

ANSWERS TO CORRESPONDENTS.

RICHARDIA (ARUM) UNHEALTHY: *G. W. R.* The foliage shows no injury by either fungus or insect pests. The trouble has been caused by drip or the frequent presence of moisture on the leaves.

FLORA OF THE WESTERN PRAIRIES OF CANADA AND THE CANADIAN ROCKIES: *Wm. R. Reader.* An Illustrated Flora of the N.C.S., Canada, and the British Possessions, 3 vols., by Britton & Brown, published by Scribner, New York, would be suitable for your purpose.

"FRENCH" GARDENING TUITION: *K. H. B.* Apply to Mr. P. Aquatius, Tudwick, Tiptree, Essex, or to the Henfield School of Agriculture, Henfield, Sussex.

LAURELS AND COWS: *Laurel.* Cerasus lauro-cerasus, the common Laurel Cherry, is sometimes eaten by cattle, with injurious effect. The leaves contain small quantities of prussic acid.

NAMES OF PLANTS: *D.M., Edinburgh.* 1 and 2 are varieties of Cymbidium Gammieanum, a natural hybrid between C. elegans and C. giganteum. No. 3 is Cymbidium giganteum.—*C. C. J.* 1, Begonia corallina; 2, Dracana surculosa (see *Bot. Mag.*, t. 5662); 3, Davallia strigosa cristata; 4, Adiantum hispidulum; 5, Nephrolepis Todeoides; 6, Lygodium scandens.

ROOT OF FRUIT TREE: *T. & Co.* The injury is directly caused by a fungus, but of what nature cannot be determined from the specimen. Cut off the large, diseased, knotty portions and cover the cut surface with gas-tar. Mix quicklime with the soil around the trunk. Kindly send some more roots, including large, as well as small, specimens for further examination.

Communications Received.—*C. H.—W. I.—John Gregory—W. H. W.—S. M. W.—R. G.—J. M. G.—J. D. A., Wimbledon—W. W.—G. F.—J. W.—H. H. W. P.—A. D.—Yokohama Nursery Co., Ltd.—J. A. K.—G. S.—Surveyors' Institution—C. H.—P. A. P., Droitwich—A. Kingsmill—Hon. E. A. W.—R. P.—T. B.—Royal Meteorological Soc.—J. R. J.—B. G.—John D.—J. F.—F. N.—W.—E. M.—A. P.—S. A.—H. S.—E. J. L.—Luther S. L., New York (your letter has been forwarded to Mr. Godfrey)—Imperial Dept. of Agriculture for the West Indies—J. L. B.—W. E. B.—H. H. P.—E. T. W., Holland—A. P.—H. & S., Leipzig—Dr. K., Berlin—W. C. G. D.—S. F. B. D., Singapore—John D., Edinburgh.*



Photographs by Prof. H. H. W. Pearson.

WELWITSCHIA MIRABILIS, GROWING ON A SANDY CHANNEL IN DAMARALAND.

(A FEMALE PLANT BEARING CONES IS SHOWN IN THE LOWER PICTURE.)

THE Gardeners' Chronicle

No. 1,205.—SATURDAY, January 29, 1910.

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THE ROOTS OF FRUIT TREES.

WHEN deciduous fruit trees are too strong to bear freely, the defect may often be traced to an excessively strong and profound root-system. This leads to root pruning, a form of labour imperfectly understood and always expensive. If roots were studied with respect to their parts and situations, trees would require less labour and give more profit. Trees with widespread branches and short, sprawling trunks seldom possess active tap-roots, but vertical growth above ground and a trunk without a heavy base at the soil-line are almost certain signs that one or more tap- or deep mining-roots are active. For roots possess a pronounced power of striking downwards only so long as the trunk and main branches grow more or less upright.

The original tap- and other large roots of trees have a length of life according as they are of a porous or non-porous nature. We mean that the roots of some plants—the Grape vine and the Elm, for example—are porous and send sap through the entire diameter of their living roots. Some Pears have this capacity, though, in their case, it depends largely on soil and climate. A tree with an all-porous root-system has naturally more vigour than one depending on a sap flow limited to the outer layers of its young wood. It is for this reason that we see some trees grow so much faster than others: the roots can gather and carry more. For this reason, also, some have massive boles deep down in the earth, and others, hollow, wedge-shape spaces under the line of the trunk.

Tap- and mining-roots, unless of a porous nature, are destroyed or become inactive by choking; they are "pinched out." Their supplies of elaborated sap are cut off by the roots above, which monopolise all the circle of bast and sap passages at the base of the trunk. A porous tap-root is associated with porous trunk wood; hence it can send up its sap, preserve its connection with the leaves, and thereby its vitality. If, however, the tap-root is non-porous, it lacks this power. This is why tap-roots die or become inactive, and the work of sustaining the tree is left to the spreading secondary roots.

If a tree has heavy roots in three positions: vertical, sloping, and horizontal, we may be sure that the last are doing the principal work of sustaining the tree. The two lower groups help to hold the tree to the soil and supply more or less coarse, wood-forming sap, but the highest layer of heavy roots is always the most important.

The nursery stage over, a tap- or deep mining-root carries no hairs and but few fibrils. This brings us to the subject of the influence of air on root action. Some misconception exists as to the function of air in the soil. Air influences the growth of roots both directly and indirectly. Directly, by supplying oxygen, which is indispensable to growth; indirectly, by rendering available to the root food substances of the soil. Moist, warm air in soil permits of bacterial action and the preparation of plant food capable of attracting and dividing the energy of roots; hence, they run through an aerated and highly fertile soil in the form of fibrils, whilst in a cold, airless, and passive soil the energies of the root are confined to a single point. Root-sap varies according to the air and food employed in its making, and the more elaborate is ever obtained near the surface. Density, humidity, and temperature are the three most important factors in root variation and value, since these control the character and the quantity of the food supply.

As orchardists and gardeners, we should know how roots are behaving over the round year. The roots of deciduous fruit trees make more or less extension throughout all but the driest and coldest seasons, and the growth varies in its nature and value during every period. Young trees, if vigorous and well placed, will grow at the roots all the year round; but mature trees are so taxed that they make free extensions only in spring and autumn. The difference in the function of spring- and autumn-made roots is pronounced. The spring roots are exhausted by the work of sustaining flowers, fruit, and leaves over the summer, whilst the autumn growth of roots elaborates buds, prevents the head from becoming too dry in winter, and furnishes the requisite material to leaves and flowers at the birth of spring. Autumn-made roots have, on the whole, the easier task. What is more, they are helped by some of the riches gathered by the ripe leaves, whilst those of spring are exhausted by the constant demands of the leaves whilst in a growing state. It may be observed that flowers open and fruit sets before the leaves unfold, and this activity in the head is often a month or more before the soil is warm enough to quicken the roots and induce them to send up sap. Here we have distinct evidence that the flowers and fruits are formed entirely of sap deposited in the head during autumn.

Bud dropping and bad setting frequently arise from lack of proper relationship between the root and head system in autumn and

spring, for too much or too little sap may be formed and distributed or withheld to ensure a good crop.

We should never "stimulate" the roots of bearing trees in early spring, nor excite them to rank growth in autumn.

Roots made when a tree has young, half-grown, mature or no leaves are all of different characters and values.

The most fruitful type of light root is made in autumn. Roots made in a falling temperature are of a more complete and fruit-yielding nature than those made in a rising temperature, because, in the one case, the leaves are a robbing and, in the other, an improving factor. We should be able to distinguish between root feeding and root extension, and see that only young and weak trees grow at the roots, stronger specimens requiring to no more than feed, and that from a reduced system and nearer to the surface. Here we have space to no more than hint at some of the all-important functions and variations in roots; but, writing in the interests of the man who has to work among trees, we would urge him to study roots at every opportunity. He should know what forces determine their direction, substance and duration; how tap- and other main-roots are formed and survive or decline, and how surrounding material and climate affect food and clothing.

The orchard man will also do well to contrast wild with domesticated root systems, note the variation in light roots at all seasons, and make a careful estimate of every tree before deciding on any form of root-pruning or soil-dressing. You must see into the soil if you would get either pleasure or profit out of it. C. Boque Luffmann.

THE ALPINE GARDEN.

HENDERSON'S HYBRID BELLFLOWER.

CAMPANULA Hendersonii is not a species, as some suppose, but a hybrid, raised a number of years ago, and identical, or almost so, with one named C. Tymonsii. It is a handsome border plant, but is not out of place on the rockery, seeing that it only grows about 10 or 12 inches high. In form the plant resembles a pyramid, with pretty foliage which becomes almost covered with large, saucer-shaped, light blue flowers. It lasts a long time in bloom, and the plant continues growing for many years in almost any position on common soil. It is a true perennial, but I have seen good plants lost owing to the gardener allowing the roots to become too high, through the soil sinking about them, and failing to top-dress to compensate for this. A little fresh soil may be placed about the crowns annually in spring and, if need be, in autumn. The plant is propagated by careful division.

CARLINA ACAULIS.

Among the dwarf Thistles, one of the prettiest and most distinct is the Carline Thistle (Carlina acaulis) (see also p. 63). It is a good plant for the front row of a border where a collection of interesting, rather than showy, plants is cultivated, but it really looks more at home in the rock-garden, especially on a flat terrace a little above the ordinary ground level. Here it makes a little plant with a rosette of spiny leaves spread out on the soil, giving almost stemless heads of glistening white flowers. The Carline Thistle is not difficult to cultivate in almost any soil, and can be raised readily from seeds. Unfortunately, slugs are very fond of the seedlings, and require to be watched or they will soon destroy a whole pot-full of seedlings. They are sometimes destructive to the larger plants. S. A.

NEW OR NOTEWORTHY PLANTS.

CALANTHE LILACINA,* N. SP.

THIS is one of the largest-flowering *Calanthes*, but it is more than this, for the lilac-coloured petals produce with the whitish, and afterwards nearly orange-coloured lip, a charming effect scarcely excelled in any species. The flowers last at least four weeks in good condition; the stalk is long and stiff. *H. Loher.*

HOYA DARWINII.†

THIS plant is one of the most interesting *Hoyas* known to me, for it has dimorphous leaves. The flowers are pink coloured and very large for the genus. I take special pleasure in naming it in honour of Charles Darwin in the centenary year. *H. Loher.*

MAXILLARIA JOHNIANA.‡

IN the present state of our knowledge of the genus *Maxillaria*, it is not easy to say whether a species is a new one. Botanists who have spent much time in research of this kind, and who know the numbers of undetermined *Maxillarias* in the herbariums, will understand that it is with some hesitation that I publish this species as a new one. The affinity, however, is somewhat clear. The plant belongs to a little group of which the oldest described species is *M. irrorata*, first described in the *Gardeners' Chronicle*, July 28, 1885, p. 102, whilst two others, *M. dichroma* and *M. elegantula*, both described by Mr. Rolfe, were published in the *Kew Bulletin* for 1898. *M. Johniana* is by no means a great thing in *Maxillarias*, but its widely-expanded, white flowers, with the deep lilac upper half of the sepals and petals, makes a good effect. As in the other three species, the lip is so densely covered with a white mealy substance (the hairs of the lip broken into innumerable small globular grains), that the brown colour is only to be seen after the removal of the powder. As in *M. irrorata*, the anther bears a very prominent keel; the column is somewhat tall. The plant flowered after three years' cultivation in the gardens of Mr. K. W. John, Andernach, Rhine. This gentleman received it from a clergyman of the little German Colony at Pozuzo, Peru. The plant upon which my description is based is rather under medium size for a *Maxillaria*. *F. Kraenzlin.*

* *CALANTHE LILACINA*, N. SP.—Planta terrestris, fere bulbosa, acaulis; folia parva (4-6), laminā ovato-lanceolata, 30-40 cm. longa, obscure viridia, nitida, in petiolum pedalem paullatim contracta. Scapus interfoliaceus, elongatus (40-60 cm.), glaber, 5-12 florus; bractee virides parvae, persistentes; floris subpatentibus sepala petalaeque subaequalia, ovato-lanceolata, breviter acuminata, lilacina (2½-3 cm. longa, 1 cm. lata); labellum fere liberum, patens, carnosum, trilobum, lobi laterales lanceolati falcati, intermedius obcordato-subbifidus, lobis rotundatis; discus flavo papillosum; labelli color albidus, demum pallide vitellinus; calcar angustum, recurvum, basi inflatum, lilacinum, labello subbrevis; columna breviter alata, alis antice nectariferis (= stigmatibus lobi laterales 2 aborti), brevis, alba. Pollinia alba, quaternum basi glandula acuta coherentia.

Habit. Luzon. Floresci. Junio Julio.

† *HOYA DARWINII*, N. SP., sect. *Euhoya*.—Ramosa, ramulis glabris; folia dimorpha, altera normalia elliptica oblonga (15-20 cm. longa, 5-6 lata) glabra, coriacea nervis non conspicuis, breviter petiolata; altera in acie abbreviata per 2-3 paria recurvata et demum capsulam globosam (marsupium), 4-6 localarem, bene clausam, formicis inhabitatam formantia; capsula longe persistens, indurescens, demum fusca; umbellae multiflorae; flores magni (2 cm. diam.) glaberrimi nitidi, corolla profunde lobata tubos perbrevis; lobi cordato-ovati, reflexi purpureo-rosei; coronae foliola erecta, magna triquetra-conica, alba, subtus usque ad basin sulcata; antherae margine papyraceo denticulato stigmati mutico incumbentes; pollinia subcompressa in glandula rhomboidea fusca fere sessilia.

Habit. montes Luzoniæ. Floresc. Mart.—April.

‡ *MAXILLARIA JOHNIANA* (Kraenzl.) nov. species. Pseudobulbi parvi, oblongi, apice obliqui, monophylli, cataphyllis 1 (v. 2) ampl. laxoque vaginibus suffulti, lamina cataphylli sessilis, illa folii basi compressa, petiolata, utraque oblonga, obtusa, coriacea, 5, 5 cm. v. 8 cm. longa, 2 v. 2, 5 cm. lata. Scapus 1 florus, vaginus 2 v. 3 quam internodia brevioribus vestitus, 4, 4, 5 cm. altus, bractea carinata, illis subaequalis, ovarium non aequans, viridis, 1, 7 cm. longa. Sepalum dorsale ligulatum, margine leviter reflexo, 2 cm. longum, 6, 7 mm. latum, sepala lateralia triangula, basi connata, 2, 5 cm. longa, basi 8, 9 mm. lata, mentum 1, 2 cm. longum, obtusum formantia. Petala lanceolata, basi obliqua, ad 2 cm. longa, 3, 4 mm. lata; haec omnia alba, acuminata, a medio apicem usque sensim sensimque intensius lilacina. Labellum toto ambitu oblongum, leviter curvatum, antice trilobum, lobi laterales parvi, rotundati, lobus intermedius triangulus, margine undulatus, obtusus; callus parum evolutus in basi lobi intermedi, antice retusus; labellum luteolum, late lilacino-marginatum, totus discus facina copiosissima alba onustus. Gynostemium gracile, anthera alba carinata. Flores sub anthesi ringentes, fere 4 cm. transversi, ad 3 cm. longi.

Peruvian Andes, near Pozuzo. Introduxit K. W. John, Andernach-am-Rhein.



FIG. 38.—*CALANTHE LILACINA*, N. SP.

(From dried specimens collected by Mr. Loher.)

FOREIGN CORRESPONDENCE.

SOME ANEMONE RUSTS.

IN the last few years there has been a great advance in our knowledge of the Uredineæ, the fungi responsible for the rusts to which so many plants fall victims. Extensive culture-experiments have been carried on both in Europe and the United States, and some curious and unexpected relationships have been proved. *Puccinia fusca* (Persoon), Winter, is the common rust found on the underside of the leaves of *Anemone nemorosa*. Beside the two-celled teleutospores borne on the *Anemone* leaf, spermogonia also occur, and this is now known to show that no other spore form is possessed by this rust. But growing on the leaves of Cherry, Plum, Peach, &c., there is a *Puccinia Pruni-spinosæ* (Persoon), which bears uredospores as well as teleutospores, the latter almost exactly like the teleutospores of *Puccinia fusca*. On *Anemone nemorosa* there also occurs an *Æcidium punctatum* (Persoon), and cultures by Tranzschell, of St. Petersburg, in 1904, repeated since by Dr. Arthur, of Purdue University, Indiana, show that this *Æcidium* is

æcidial and uredo form and can live on *Anemone* only. E. W. D. Holway, University of Minn., U.S.A.

VEGETABLES.

NOVELTIES IN PEAS.

LAST year I cultivated a few new varieties of Peas, with the following results:—

SNOWDROP.—This is a first early variety, of robust habit, resembling *Ne Plus Ultra*, but it has much finer pods, which chiefly hang in pairs, and the Peas possess splendid marrowfat flavour. The plants are of average height.

INTERNATIONAL.—This is a new Pea that received an Award of Merit in 1908. As a second early in the marrowfat class it is a very fine variety. It grows about 5½ feet high; the haulm is very stout and of a dark-green nature. The pods are large and handsome, generally in pairs, each pod containing nine or ten large-sized Peas of delicious flavour. It will prove a fine variety for early exhibitions.

HARVESTMAN is a maincrop variety obtained from a cross between *Express* and *Duke* of

PEAR DANAS HOVEY.

DANAS HOVEY was a raiser of new fruits in Massachusetts, United States of America, and introduced the variety of Pear which he named after himself (see fig. 39) in 1854. In the *Nomenclature of the Pear*, issued by the United States Department of Agriculture, there are no fewer than 16 varieties of Pear with the prefix *Danas*, and the one under notice is described as the best of them all. It is a small, rather obtuse variety, possessing a juicy, melting flesh with a pronounced aromatic flavour. The season is November and December, and it forms a useful addition to late Pears. Fruits were exhibited by Messrs. James Veitch & Sons at the meeting of the Royal Horticultural Society on January 11, but they were then past their best condition. The same firm showed fruits of this variety on November 24, 1908, when the Fruit and Vegetable Committee awarded it an Award of Merit.

NOTICES OF BOOKS.

CALIFORNIAN TREES.*

THE forests of California have long been celebrated for their grandeur and extent. They are inhabited by a great variety of trees, especially cone-bearing trees, some of which are said to be the largest, tallest, and oldest in the world. Certain of these trees inhabit a wide geographical area, such as the Douglas Spruce (*Pseudotsuga Douglasii* Carr.), which ranges from the Rocky Mountains to the mountains of Western Texas, Southern New Mexico, Arizona, North Mexico, and from the eastern base of the Rocky Mountains to the Pacific coast, being most abundant in southern British Columbia, Washington, and Oregon, and ascending on the Californian sierras to 5,500 feet above the sea. Others, such as the Monterey Cypress (*Cupressus macrocarpa* Hartw.), are very restricted in their range, this species inhabiting the coast of California, south of the bay of Monterey, for an area of about 2 miles long and 200 yards wide. From 1789 to 1876 the botanical literature relating to California was confined chiefly to descriptions of new species, or annotated catalogues of collections made on various expeditions. The first systematic treatise upon the plants of California was presented in the *Botany of California*, the first volume of which was published in 1876. In 1878 and in 1884 Dr. Gray published two parts of the *Synoptical Flora*, in which were very considerable additions to the knowledge of the Californian flora. From 1885 to 1895 the most active contributor to Californian botanical literature was Professor E. L. Greene, and in 1901 Dr. Jepson, the author of the present work, published his *Flora of West Middle California*. In 1905 Miss Alice Eastwood published a *Handbook of the Trees of California*. Besides, of course, this special literature dealing with California, we have Professor Sargent's well-known magnificent work, in 14 volumes, the *Sylva of North America*, and in 1905 his smaller *Manual*. In 1908 Dr. N. L. Britton published his *North American Trees*. Therefore, it will be seen that the botanical literature dealing wholly or in part with the trees of California is very considerable.

The number of species of trees in California, according to the author of the present work, is 94. Of this total, 43 are coniferous trees, three are Palms or Palm-like trees, and 48 are broad-leaved trees. California is most remarkable for its development of Coniferæ, not only in number of species, which exceeds that of any other equal area, but in the size of the individual trees, and in their forestal development. This statement is peculiarly true of the true Pines, of which there are 17 species. The Oaks may be contrasted with the Pines. Of true Oaks there are 14 species;

* *Trees of California*, by Willis Linn. Jepson, F.B.D. Series with 125 illustrations. (Curtingham, Curtis and Welch, San Francisco.) 2.50 dollars.

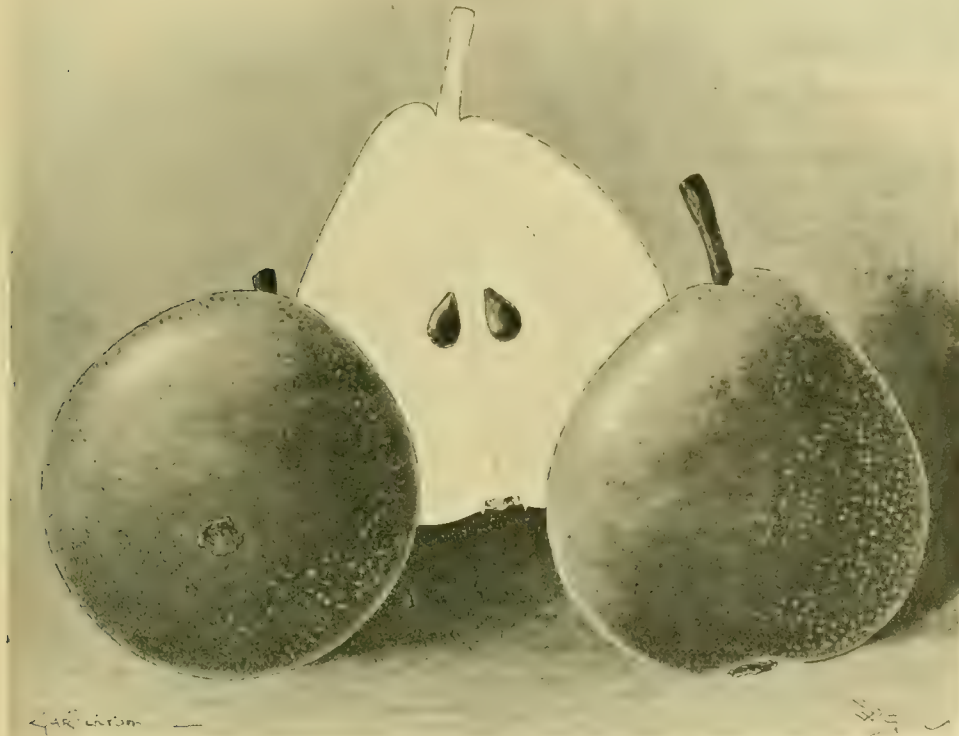


FIG. 39.—DESSERT PEAR DANAS HOVEY.

a stage in the life history of the Plum rust. Dr. Arthur says: "From these results there can be no further question of the general identity of the American and European Plum and Cherry rusts and their connection with *Æcidium punctatum*."

Dr. Tranzschell has also shown by cultures that another *Anemone* rust, not so widely distributed, *Æcidium leucospermum*, D.C., is connected with *Ochrospora Sorbi* (Oud.), Dietel, growing on *Pyrus Aucuparia* and other species of *Pyrus*. Of course, it is not to be supposed that the *Æcidium* is a necessary stage in the distribution of the Plum rust, as the uredospores enable it to spread, and in warm countries collections are generally all uredospores, teleutospores seeming to be rarely formed.

A number of similar discoveries have since been made. The theory is that originally *Puccinia Pruni-spinosæ* was able to produce all its spore forms on both *Prunus* and *Anemone*, but, becoming specialised, one form became limited, for the uredo and teleutospore stages, to *Prunus*, and retained its æcidial stage on *Anemone* only, while another form lost its

Albany. The haulm is very sturdy, growing 5 feet high, and producing a profusion of pods of good size, chiefly in pairs. There are generally nine Peas in each pod.

DREADNOUGHT.—This variety is ready for use at about the end of August, and is reliable in a wet season, such as was experienced last year. It has rather blunt pods, that fill out well. The haulm grows about 3 feet high, and it resists mildew. The pods are produced generally in pairs, and nine good-sized Peas of excellent flavour may generally be found in a pod.

MICHAELMAS.—I remember seeing in the Royal Horticultural Society's Gardens at Wisley a variety bearing this name. It is said to be invaluable for late cropping.

I might mention many other varieties, such as *Quite Content*, *The Bell*, *Essex Wonder*, *Laxtonian*, *Discovery*, *Langley Gem*, and *Progress*, all good cropping varieties, while more recent introductions include such sorts as *Little Marvel*, *The Daisy*, *Pioneer*, *Royalty*, *The Gladstone*, &c. E. J. Quinton, *The Gardens, Pepper Harrow*.

but their forestal development is comparatively insignificant, with one exception, the Tan Oak.

Perhaps the best-known Californian trees are the Sequoias. Although there are now only two living species, the number of extinct species is

and should prove a very useful and handy little book. Of the illustrations, which add much to the value of the work, some are from drawings by Miss Mary Swift, others from original photographs. E. G. B.



FIG. 40.—CARLINA ACANTHIFOLIA, SHOWING THE INFLORESCENCE CLOSED.

considerable, probably about 16. *S. gigantea* inhabits the western slopes of the Sierra Nevada at 5,000 to 8,000 feet, from Placer County to Tulare County, in disconnected areas called groves, 32 in number. The author estimates the extreme age at 1,100 to 2,400 years. The specimen in the Natural History Museum at South Kensington has 1,335 annual rings. Popular authors, whose figures are based solely upon an admiring contemplation of their bulk and stateliness, have attributed to them ages no less than 5,000 to 8,000 years.

The Redwood, *S. sempervirens*, was first described by Lambert from specimens collected by Menzies, and these specimens are now in the Herbarium at South Kensington. It is distributed from south-western Oregon south to the Santa Lucia Mountains, and is stated to occasionally reach the enormous height of 340 feet.

The author indicates five species of *Cupressus* as occurring in California. These include *C. Sargentii* (Jepson) and *C. Bakeri* (Jepson).

The distinctive character of the *sylva* of California is emphasised by a comparison of it with the *sylva* of the Eastern United States. These *sylvas* have only two species in common, namely, the Aspen and the Black Willow. The Californian *sylva* has, however, marked relationships with the *sylva* of Oregon and Washington, and, in a less degree, with the *sylva* of the Rocky Mountains. Nearly all the species of *Pinaceæ* and *Cupressineæ* are peculiar to the Pacific coast. Although about 13 species range east to the Rocky Mountains, only a few of these have any considerable development or extension in that region. All the species of *Fagaceæ* are peculiar to the Pacific coast, save one only, *Quercus chrysolepis*, Liebm., which ranges east in a limited manner through Arizona to New Mexico.

The present work is not a condensation of, and should not be confused with, the author's *Sylva of California* (Mem. Univ. Calif. No. 2), a more technical treatise. It is designed primarily to provide a working manual in small compass for use for the forester, or traveller, or, in fact, anyone who wishes to learn something of the botany of the Californian trees. It is put together with all the author's well-known care and critical knowledge, illustrated with 125 original figures,

which passes into a dirty shade of crimson. A strange omission is that of *Hermosa*, certainly one of the most beautiful bedders. The selection of climbers, now so important a section, is a good one, *Hiawatha*, *Blush Beauty*, *Minnehaha*, and others receiving all the praise they deserve. The newer Roses also receive due attention, and selections may be made from these with the usual reserve necessary in regard to all novelties. R. P. B.

CARLINA ACANTHIFOLIA.

THE *Acanthus*-leaved Thistle (see figs. 40, 41) is a native of the Mediterranean region, and is more curious and interesting than beautiful. The rosette of leaves spreads flat upon the ground and measures nearly 2 feet across. The leaves are bright green above and woolly beneath, pinnatifid in form and armed with strong spines. The solitary head of flowers rests upon the rosette of leaves and is 6 inches across when expanded. The inflorescence opens every morning and closes at night or during rain. When closed it looks a prickly subject, for the outer, brown, involucre bracts are very spiny and sharp. The inner bracts are longer and straw-coloured and close over the flower, for the ray florets are absent, belonging as the genus *Carlina* does to the *Cynaræ* section of *Compositæ*, which includes the Globe Artichoke, in which all the flowers are tubular. These tubular flowers open in circles, commencing from the outside, until the centre is reached. The flower-head lasts several weeks, and even after the flowers have faded the bracts continue to open and close in the morning and evening.

Carlina acaulis is supposed to be the one which cured Charlemagne's army of the plague, though Linnaeus ascribes the name (*Carlina*) to the Emperor Charles V. for a similar reason. The thick roots of the young plant are said to be edible, but when old they become bitter. The inner bracts of this species are white, and the leaves are more undulate than those of *C. acanthifolia*. Under cultivation *C. acaulis* sometimes develops stems 6 inches or more high.

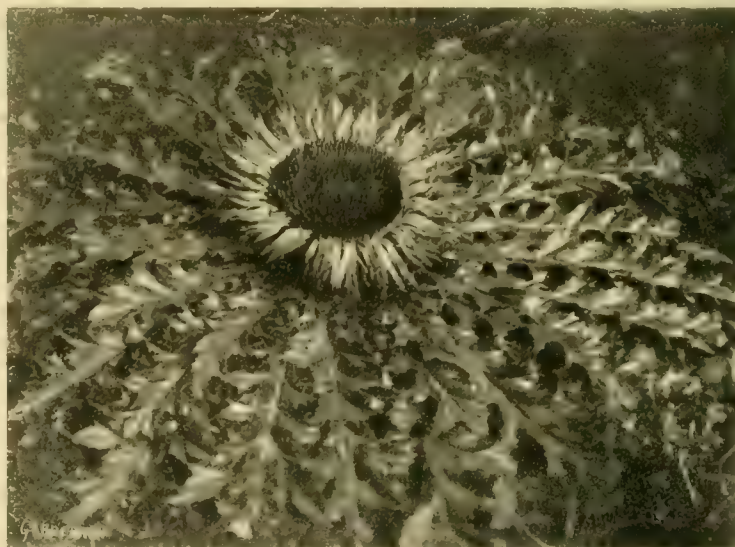


FIG. 41.—CARLINA ACANTHIFOLIA WITH INFLORESCENCE OPEN.

Pat, taken as a whole, the teaching of the book is thoroughly sound, and can be safely recommended.

The lists of varieties are particularly full and trustworthy, though I should hesitate to recommend Gruss an Teplitz as a bedder for the North, nor Marquise de Salisbury for its colour,

* By F. W. Dodds. Price 1s.

The British *Carlina* shares with the above species the property of opening and closing even after the flowers have faded. This is accounted for by the hygroscopic nature of the bracts. Curious ornaments can be made by drying the heads of *C. acaulis* with its stems. They will close for a time after being dipped in water and open when dry again. C. F. Ball.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE TALLEST TREES IN THE WORLD.—In a recent article on "The Rise of the Sap in Trees," Professor A. J. Ewart (*Philosophical Transactions of the Royal Society of London*, B., vol. cxcix., p. 367) corrects the exaggerated heights ascribed to some of the Gum-trees of Australia, and accepted by writers of repute, such as the late Baron Ferdinand von Mueller, which have been repeated in numerous popular books, including the writer's *Guide to the North Gallery*, at Kew. As an instance of the utter untrustworthiness of the measurements of certain observers, Professor Ewart states that the height of one and the same tree was estimated by the same person, first, as 525 feet, then as 466 feet, and, finally, as 220 feet! He has gone into the matter carefully, and, so far as his investigations go, the tallest individuals of, probably, the tallest tree in Australia—*Eucalyptus amygdalina*—are, approximately, 300 feet high, the greatest measurement being 303 feet. In the guide in question, the painting numbered 599 is described as representing trees of *Eucalyptus amygdalina*, most of them exceeding 300 feet in height; and there is the further statement (in the third edition, 1885) that several trees of this species that had been measured were more than 400 feet high, and the tallest measured 471 feet. Mueller (*Eucalyptographia*) strongly emphasises *E. amygdalina* as the tallest tree in the world. Another painting in the North Gallery, numbered 604, represents the Karri Gum (*Eucalyptus diversicolor*), and Mueller's statement that he had seen many trees of this species that approached 400 feet in height is reproduced in the guide. This estimate was probably based on equally inexact observations as those relating to *E. amygdalina*. However, without giving exact measurements, J. Ednie Brown (*Report on the Forests of Western Australia*, 1895) states that 300 feet is not an unusual height for the Karri. It is a pity that such rough guesses were ever recorded, and by writers of reputed authority, because it is impossible to get rid of them altogether. In this connection, the question arises, which is the tallest tree in the world? At the date of the guide (1882), 325 feet was the greatest authenticated height of the Californian Mammoth Tree, *Sequoia gigantea*, and Professor Sargent, the latest authority, states, in his *North American Sylva*, that several trees over 300 feet high existed, and gives 325 feet as the highest known. Accepting these figures, America can claim the tallest tree, and Australia takes second place. *W. Botting-Hemsley, Strawberry Hill.*

IRIS RETICULATA HISTRIOIDES MAJOR.—The old form of *I. reticulata histrioides* is rather a refractory subject to cultivate and bloom a second year in succession, at least from imported bulbs. More recently a form under the distinctive name of major has been introduced to cultivation and increased and raised from seeds; this variety proves more suitable for cultivation in our climate. A fine group of plants shown by Messrs. Cutbush & Son at the meeting of the Royal Horticultural Society, on January 11, was so raised, and amongst them I noted a considerable amount of variation, some having the falls of a lighter or darker blue, with more or less pronounced spotting; the falls varied in being narrower or broader than the type. The variety major is the most handsome of the *I. reticulata* group, and if fine forms with broader falls are obtained by seed sowing and these prove of easy cultivation in pots or in sheltered places out-of-doors, they will be a boon to lovers of Irises and hardy plants generally. Already it has been proved that *I. reticulata histrioides* is capable of being established in some gardens, and plants of the major form should prove easier in this respect, especially if raised from seeds in this country and planted out while quite young. Fine or improved forms would be worth some care to increase them from offsets, and major is capable of being multiplied in this way. *J. F.*

FERNS IN INVERTED BOTTLES.—I was shown a few years since, at Surbiton, exactly the same thing in relation to the growth of Ferns in inverted bottles as was mentioned on p. 44 by Mr. A. Lessaman. In that case the ground, in

which a great number of champagne and other wine bottles were inverted, had once been the bank of a rural lane, but had been levelled and fenced in; then a portion of it was roughly edged with inverted bottles, which the gardener found at hand. Ferns grew in many of these, quite filling them with fronds. I had one given to me, and kept it fully a year, the Fern depending solely for sustenance on a mere trifle of soil in the mouth of the bottle. It proved to be a British *Adiantum*. Now, assuming that no soil from the garden, such as old potting soil in which Ferns had been growing, had been mixed with the natural soil in this or Mr. Lessaman's case, is there not conclusive evidence afforded that Fern spores buried deeply remain fertile for many years? In the case of the Surbiton bank, no Ferns had been known to grow wild on it in living memory. Mr. Lessaman does not say whether the Ferns found in his bottles were tender or hardy, but, presumably, they were British species, and therefore hardy. *A. D.*

PERENNIAL ASTER TRADESCANTIA.—It often happens that some of the old plants drop out of cultivation in the present race for novelties. I noticed recently in some provincial towns large quantities of this beautiful and useful Aster; they were being hawked about the streets. Judging by the large numbers of ladies carrying sprays, it appeared to be in great demand. No other hardy plant, flowering at the same period, is quite so useful. For mixing with late outdoor Chrysanthemums and other flowers it is charming. The little, white flowers stand out on elegant foliage, giving it a light appearance such as no other Aster possesses. As a garden plant it cannot be too highly esteemed, coming at a time when flowers in the open are almost worth their weight in gold. It is probably the last of the Starworts to flower, and good sprays may be cut well into November. *E. J. L.*

COTONEASTER SIMONDSII.—One of the entrance lodges to the Haford Estate, near Pont-Rhyd-y-Groes, Cardiganshire, is covered on the south side with this species of *Cotoneaster*, which steals into the recesses of the windows. It was so covered with berries recently that the point of a finger could scarcely be placed between them. *W. P. R.*

INTENSIVE CULTURE.—An exhibition of intensive culture will be held in the Royal Horticultural Hall, Westminster, on Wednesday, March 23. It is hoped that those interested in this industry will contribute to the success of the exhibition. To those who can furnish a stall themselves, we shall be pleased to allot space free, or to receive contributions, large or small, towards a general stall. The exhibitor's card will be displayed with each individual contribution. The following will be the principal articles exhibited:—Lettuces, salads, Cauliflowers, Cabbages, Radishes, Carrots, Turnips, Peas, Beans, Asparagus, Rhubarb, Mushrooms, Strawberries, &c. The schedule will be published later, with particulars of the opening of the exhibition and distribution of prizes and medals. *Stour Valley Gardening School, Sturry Station, Kent.*

THE PRUNING OF YOUNG VINES.—Mr. Molyneux (p. 51) gives some advice on this subject, and I agree with most of what he says. But I thought the practice of growing a vine to the length of 14 feet, merely to be cut down, was abandoned long ago. I could point to vines which, I understand, are still in the best possible condition after fruiting heavily for 35 years or more, which were never cut down at all. They were planted during summer about five months after the eyes had been inserted, and the canes were left at pruning time from 6½ feet to 9 feet in length. Mr. Molyneux says some of the side shoots will be weak if 6-feet lengths are left. So they will be if the vines have been allowed to ramble unchecked. But they should be stopped at midsummer and the side growths should be kept pinched to one leaf, as for pot vines. Fruiting pot vines, as a rule, if they are well grown and mature their canes perfectly, are fairly regular in their side growths, and this should be an object-lesson to us. There is much to be said against cutting down young vines year after year, independent of the waste of time and space,

but into that I will not now enter. Supposing there are some growths weaker than others, it is a very easy matter, by intelligently stopping the stronger, and encouraging the weaker ones, to form a well-balanced vine in one season. Mr. Molyneux would not allow the main stem to be left longer than 2 feet each season. This would mean that a rafter 20 feet in length would not be furnished for 10 years. I think better results can be obtained by furnishing them in half that time. *Wm. Taylor, Bath.*

THE WEATHER AT ROTHAMSTED, 1909.—In reply to inquiries, I may state that the aggregate degrees of monthly frost is the collected sum of the various daily quantities. The most frost on any single night was for January, 14°; February, 14.5°; March, 16.5°; April, 3.8°; May, 3.2°; October, 3°; November, 5.5°; December, 11.5°. *J. J. Willis, Harpenden.*

FLORISTS' FLOWERS.

NOTES FROM GUERNSEY.

MR. H. BURNETT, of St. Margaret's Vineries, the well-known raiser of Carnations Mikado, Marmion, Mrs. H. Burnett, the Aurora, Ceres, and others, has now catalogued three other good novelties. Snow Queen is a pure white flower of good size, and with thin, wavy petals; Fortuna is the nearest approach to a deep yellow with a suspicion of orange in the centre petals; and Mrs. J. H. Clode is the largest scarlet flower yet produced. It has powerful perfume, but as sweet as that of the old Clove Carnation. Its growth is vigorous.

For the 1910 shows Mr. H. Burnett has also a few excellent new varieties. The most striking are two yellows, as yet unnamed—one a pure canary yellow, a delicately-formed flower; the other a lemon self, fancy Carnation. Somewhat on the lines of Aurora but brighter and larger is Vulcan, with flaming, scarlet petals flushed with crimson and terra-cotta. It is of medium size, but has fine foliage. Pluto promises to rank high amongst the dark-coloured perpetuals; it may be described as of a crimson-maroon in colour; distinctly brighter than Octoroon. The edges of the petals are so finely serrated that they appear almost plain. A fascinating flower is named Bridesmaid, of a slightly paler shade than the popular Mrs. H. Burnett. It is of extra large size; one or two of the fully-open blooms I saw being half as large again as Enchantress. The flowers are full-petalled, and the petals are prettily waved. One of the best type of the true tree Carnations is Mrs. Tatton. This has pale rose flowers, with whitish markings. The flower is of similar shape to Mrs. H. Burnett. Like that variety it has vigorous foliage, and the cuttings root easily.

Mr. Burnett has nothing grander than his new variety of Souvenir de la Malmaison, the Red Malmaison. This is of fine size, resembles Princess of Wales in shape and habit, and has flowers of deep, rich red. The foliage is wonderfully clean and healthy.

The chief raiser of "Malmaisons" here is Mr. Calder, of Jerbourg Vineries, whose head gardener, Mr. P. Bogie, has been a Carnation expert for very many years. Mr. W. Cameron, of Resolis, had also a few good things. His new tree variety My Clan Chief is a fine dark Carnation, darker than President, but it needs a sunny winter to develop it properly.

The latest "perpetual" from America is in full bloom just now at Mr. Burnett's. This "Prince Charming" is the daintiest and best-shaped "tree" Carnation yet received from America. It is of a blush-rose hue, very similar in tint to the old Maiden's Blush Rose. The lower petals stand out at right angles to the stem, and the centre petals form a semicircle with them; yet there is no crowding of the petals. The flower is delicately scented and seems a strong grower, with long, straight flower-stems. *W. S. B.*

THE WEST INDIES.

(CELOGYNE PANDURATA).—This species succeeds exceptionally well at St. Clair, where it is grown in partial shade with no very special care beyond ordinary Orchid-basket treatment. The flower-stems, where they emerge from the base of the two-leaved pseudo-bulbs, bear several foliaceous bracts. In colour the sepals and petals are green and the lip crape-black, which gives the flowers a somewhat unusual appearance among Orchid blossoms. I have before me a plant bearing a spike of 14 open, slightly-fragrant flowers. The species is a native of Borneo.

GARDENIA THUNBERGII.—There is but one flowering specimen of this tree known to me in Trinidad, and that is in the front portion of the garden attached to the Governor's residence, St. Ann's, near to the bandstand. Regularly, every year, this tree blossoms for many weeks together, and during this time imparts a pleasant odour to the immediate neighbourhood. The flowers, at first, are white, changing shortly afterwards to a yellow tint. Each bloom has nine overlapping petals placed upon a long slender tube. The corollas are 5 inches across. The leaves are small, and vary in shape, some being long and narrow, others short and broad; the longer measuring $3\frac{1}{2}$ inches in length, whilst the shorter and broader ones are $1\frac{1}{2}$ inch wide. These and the single flowers are borne upon short spur-like branches, 1 to 3 inches long and arranged in threes upon the larger branch-ports. The leaf is glabrous, darker and more shining green above, with tufts of hairs arranged about the tiny, sunken cavities in the axils of the veins below, the depressions forming raised surfaces above. In colour the bark of the branches is pale green to a silvery grey. The wood is hard. The species comes from the Cape of Good Hope. Owing to the large and sweetly-scented flowers and small spreading habit, it is recommended for inclusion in any fairly large tropical garden. It seldom fruits, so that seeds are unobtainable on the spot, but propagation has been effected by means of layering.

IXORA ODORATA.—*I. odorata* is one of the very best of the cultivated *Ixoras* in Trinidad. The flowers are delightfully fragrant, white at first, but passing into cream colour. The corolla tube is $2\frac{1}{2}$ inches to 3 inches in length, slender and pinkish. The plants flower more or less throughout the year. The leaves upon the shrub before me are dark green above, with reddish blotches, a trifle over 8 inches long, including the short petiole, and 2 inches broad. The branches are erect.

I. LUTEA.—In this species the clusters of flowers are more thickly set than those of *I. odorata*, the corolla tube being only about $1\frac{1}{2}$ inch in length, besides differing also in colour, that of *lutea* being a deep yellow. The flowers are almost scentless. The leaves are short, broad, and sessile, and the stems semi-scandent. Both kinds are propagated in Trinidad by layering. Possibly the correct name is *I. congesta* (*I. Griffithii*).

PHYLLARTHON COMORENSE.—Among the older, but rarer trees established in the Government House gardens at Trinidad is a solitary representative of this species. It is growing quite close to *Gardenia Thunbergii*, another equally uncommon tree. The leaves have a singular appearance. They are attached to the stem in threes, having a short petiole and forming a knob at their base. Each leaf is divided into three distinct pieces, situated in a straight line with the petiole, the whole measuring 6 inches in length and not more than $\frac{3}{4}$ inch wide. They are smooth and glossy-green above. The flowers are tubular, small, and of a pale lilac colour. The fruits are white and pulpy. On the older boughs the bark is of a corky nature. *W. E. Broadway, Tobago, W. Indies.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Balford, Surrey.

Miltonia.—The present is a suitable time to examine the Brazilian *Miltonias* to see if any of the plants are in need of more pot room. Though they do not like root disturbance, it is unavoidable when the young growths have extended beyond the edges of the receptacles in which they are growing. All plants of this genus will not need to be potted at the same time, but this must be regulated by the period at which the young growths commence to produce roots from their base—generally when the growths are several inches in length. Such dwarf-growing species as *M. spectabilis* and its variety *Moreliana* are best grown in shallow pans; they need considerable space, as the growths are of a rambling habit, and extend themselves in every direction. As these two species have a natural tendency to become bare in the centre, it often becomes necessary to break them up and divide the pieces. When doing this, all useless back pseudo-bulbs should be cut away, and the growing pieces remade into neat, compact specimens. Let the pans be about half full of drainage, using a compost of *Osmunda* and *Polypodium* fibre in equal parts, cutting both materials up moderately fine, mixing them well together, and adding plenty of small, broken crocks to ensure good drainage. In such material they may be watered very freely during the growing season, because the water passes quickly away, and the risk of decay in bulbs, roots, or foliage is avoided. Keep the soil about on a level with the rim of the pan, and those plants which have but few roots to hold them steady must be pegged down to the compost, as they will never succeed if loose. Small copper wire pegs are suitable for securing them till the roots have obtained a good hold of the material. Such plants as *M. Peetersiana*, *M. virginalis*, *M. Veitchii*, *M. Bluntii*, and its var. *Lubbersiana*, are also best grown in shallow pans; while, for the stronger-growing varieties such as *M. Clowesii*, *M. Regnellii*, *M. Lamarckiana*, *M. cuneata*, *M. bellula*, *M. Joiceyana*, *M. leucoglossa*, *M. flavescens*, *M. Clusiana*, *M. Cogniauxiae*, *M. candida*, and its superior variety *grandiflora*, the ordinary flower-pot is more suitable. The pots should be made at least two-thirds full of drainage. Keep the plants a trifle elevated above the rim of the pot, with the base of the bulbs just touching the compost, so that, when the young growths develop, they will be free from anything likely to cause decay. All the *Miltonias* mentioned thrive best in a cool, shady part of the intermediate house; when grown in a very light position, the growths become thin and weak, and the foliage far more yellow than is desirable. After repotting, very little water is needed until numerous roots are seen pushing out from the new growths. An important point in growing these *Miltonias* is to see, when the young roots commence to push out from the growths, that they are not injured or destroyed by insects. Slugs, cockroaches, and woodlice are very fond of them, and, if not diligently sought after and destroyed, will do much harm in a short time.

Calia.—Such Orchids as *Calia bella*, *C. Baueriana*, and *C. macrostachya* are well worth including in every representative collection, especially the first-named species, its rose purple-tipped sepals and lip of canary-yellow being very attractive. These plants will now be starting into growth, and should be repotted if this is found necessary. Half fill the pots with clean crocks, and employ as a rooting material the same as advised for the *Miltonias*. The plants require a light position in the Cattleya or intermediate house. As the plants become re-established, water should be liberally afforded till the pseudo-bulbs attain their full size.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Cucumbers.—If, as was then advised, seed was sown in December, the new plants are now ready to put out. Clean the house thoroughly and whitewash the walls with hot lime. After this has been done, the hot-bed may be got ready, and upon it should be formed mounds of

soil, placed at distances of 4 feet. The hot-bed should be allowed to remain for a few days after the mounds are formed, and the temperature of bed and soil should be ascertained before planting. A compost consisting of three parts turfy loam and one part leaf-mould is the best to use at this season, but for later crops the leaf-mould may give place to well-decomposed farmyard manure. Frequent, light top-dressings with the same kind of soil during the time the plants are bearing will help to keep them in a good condition, and an occasional dusting of soot will be advantageous. The atmosphere must always be maintained moist and the foliage should be fully exposed to the light unless on extra bright days, when a light shading may be employed for a few hours with advantage. Let the ventilation be managed with due regard to external conditions. It should never be employed with a view to suddenly lowering the temperature of the house. Afford water with extreme care until the roots have a good hold of the soil. Syringe the plants twice daily in bright weather, and close the house as early in the day as this can be done with safety. The temperature at night should be 65° , but it may rise to even 80° or 85° by day in bright sunshine. Another sowing may be made in small pots for succession, covering the pots with pieces of glass until the seeds have germinated. If the soil is moderately moist when the seeds are sown, no water need be applied until germination has taken place.

Tomatos.—Tomato plants which were raised in October, and have been wintered near the glass in a cool house, will now be showing flower, and may be given their final potting. Let this be done moderately firm, using 10-inch pots and plunging the pots in a gentle bottom heat. Early Tomatos succeed best in a house with a south aspect, where a gentle hot-bed can be utilised. This bed should be formed at such a height that the first truss of flower upon the plants will reach the bottom wire of the trellis, which should be 15 inches from the glass. Each plant should be confined to a single stem. When the flowers are ready for fertilisation necessary pollen must only be obtained from the best flowers, applying this to the stigmas of all flowers, for in some the pollen may not be properly developed. When a good set of fruits has been obtained, a liberal application of manure water will be beneficial. The temperature at night may be 60° , rising by day to 65° or even 70° , admitting air in favourable weather. Make a sowing of an approved variety for succession, and place the pots containing the seeds in a temperature of 70° until the young plants appear, when they may be placed as close to the glass as possible. Seeds need not be sown for the outdoor crop until March 1.

Leeks.—If large, well-blanching Leeks are required early in the season, seed must be sown at once, selecting an approved variety. Sow the seeds thinly in boxes or pans, and place them on a gentle bottom heat. Prick off the seedlings into boxes as soon as they can be handled. The young plants will need free ventilation, as they will not succeed if coddled, but they must be preserved from draughts. Leeks, being gross-feeding plants, require a rich soil. At the end of April the plants will be ready for putting out in well-manured trenches in the open, allowing 15 inches between each plant.

Celery.—A small sowing may now be made for the earliest crop, covering the seeds very lightly with fine soil. Place the receptacles containing the seed on a gentle hot-bed.

Jerusalem Artichokes.—The tubers should be lifted as soon as possible, saving the largest for use, and those of medium size for next season's planting. They should be planted in rows made 4 feet apart, allowing 18 inches between the plants in the rows.

Autumn sown Cabbage and Spinach.—Look over the Cabbage quarter planted in the autumn and fill up any vacancies with plants from the seed-bed. Apply a dressing of soot and stir the ground between the rows either with a hoe or digging fork to the depth of 2 or 3 inches. Winter Spinach may receive the same treatment.

Root stores.—Turnips, Carrots, Beetroot, &c., should be examined frequently, and all young growths broken off.

Lettuce.—A sowing should now be made in a slightly-heated pit to produce a supply in May. Ideal, Golden Queen, and Balloon Cos are good varieties for this sowing.

PLANTS UNDER GLASS.

By L. D. BUCKINGHAM, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hall, Westwood, Yorkshire.

Stephanotis floribunda.—This plant succeeds best when trained along the roof of a stove or warm greenhouse, where it can obtain plenty of sunlight. The new shoots grow to a considerable length, and are best supported on strands of twine stretched along the roof, in such a position that the growth will become thoroughly ripened, and, if the plants, being in pots, are required to be trained later in the form of a balloon, on a trellis, or over a flat wire screen, this can easily be accomplished. The *Stephanotis* requires an extensive root-run, and in the case of planted-out specimens the compost should be of such a nature that it will remain in a good condition for a considerable period. It may consist of strong, fibrous loam two parts, from which the finer particles of soil have been shaken, and one part of peat, with sufficient charcoal, mortar rubble, and coarse sand to keep the soil porous. In the case of pot plants, when the growth has become active, a greater portion of the old soil should be removed, and the plants repotted into clean, dry pots. Firm potting is necessary to ensure sturdy, short-jointed and well-matured shoots.

Marguerites.—Most of the plants which were propagated during the autumn will require to have their main shoots stopped. Take out the extreme tips of the growths and, if further stock is desired, insert them as cuttings. If they are placed in an open soil in pans or small pots, and the atmosphere is kept close, they will readily form roots. In addition to the type, there are varieties with pink florets and others with Anemone-like centres. The best of these are Coronation, Queen Alexandra, and Pink Queen Alexandra.

Euphorbia Jacquiniaeflora.—As the old plants pass out of bloom, select the healthiest, and place them as near the glass as possible, in order to provide an early supply of cuttings for propagation. The batch of stock plants being afforded as much light as possible, and the roots kept in a somewhat drier condition, only an intermediate temperature will be required to encourage the growth of sturdy cuttings.

Violets in Pots. The damp and sunless weather since autumn has been against these plants, whether cultivated in pots or planted out in frames. Examine them frequently, and remove all dead or decayed foliage, lightly stirring the surface soil occasionally with a hand fork; admit abundance of ventilation on all favourable occasions, but prevent draughts by ventilating only on the side of the frame sheltered from the wind.

General work.—Exercise great care in the watering of all newly-potted plants, as a too liberal supply at this season would be very injurious. Afford ventilation with extreme care, preventing cold draughts and sudden fluctuations in temperature. The damping of the paths and syringing of bare spaces in the plant houses will require to be done more frequently as the days brighten.

THE HARDY FRUIT GARDEN.

By A. R. SEARL, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

The Loganberry.—This useful fruit should be cultivated in every garden; the berries are splendid for jam making, and also for tarts, especially when mixed with Apple of some good culinary variety. The Loganberry is a strong grower, and delights in a deep, moist loam. It should receive the same cultural treatment as the Raspberry, excepting that it should be given more room, as it is a stronger grower. It may be planted in almost any aspect, and trained either on walls, wires, trellis-work, or fences.

Pruning.—This work is, in many gardens, greatly in arrears, owing to the unfavourable weather. Espalier or wall trees of Apple, Pear, and Plum should receive attention immediately opportunity occurs. In the case of Apple and Pear trees, the leading growths should be shortened according to the vigour of the tree, and sufficient young shoots be retained to properly furnish the tree; all other shoots should be cut back to two or three buds. Large and old trees that have become crowded with bush-like spurs should receive a good thinning, removing some

of the most prominent spurs entirely. If Plum trees received proper attention in the matter of summer pruning, very little winter pruning will be necessary beyond the shortening and training in of the leading growths. Any shoots that were not pinched in the summer should be cut back to three or four buds. Young trees should be carefully pruned the first year after planting; the lower branches should be bent down at the sides, in order to induce them to break into growth at their bases, and so form a good foundation to the tree.

Orchard and standard trees.—These should be examined annually, and any unfruitful or misplaced branches removed. Some of the spray wood may be thinned, if necessary, so that light and air may have free access to the centre of the trees. Young standard trees need careful pruning for the first few years after planting. Select the best-placed branches to form the "head," and shorten the leading shoots to one-third their length; cut back all others to two buds. If careful attention is given standard trees for the first four or five years, very little pruning will be necessary after, excepting the removal of branches that cross one another.

Protection of fruit blossoms.—The materials used for warding off frost when the trees are in bloom should be got ready for use. Mineralised tiffany is very suitable for this purpose, and will last for several seasons if it is properly dried and stored when not in use. Two or three thicknesses of ordinary fish netting placed in front of wall trees is also sufficient to ward off several degrees of frost. Be careful to properly fasten whatever material is used, so that the wind does not cause it to damage the branches.

FRUITS UNDER GLASS.

By B. GARDINER, Gardener to Sir JAMES CASSIDY,
Glen Villa, Moulton Paddocks, Newmarket.

Alpine Strawberries.—These provide an agreeable addition to the dessert table during autumn and winter. A batch of about 200 plants is sufficient to provide a picking of fruits daily from September until Christmas. The newer varieties, both white and red-fruited, furnish fruits twice the size of the old Alpine Strawberry. These Strawberries can be raised from seeds, either saved in the garden or bought from the nurserymen. In the case of home-saved seeds, they should be selected from the finest and earliest fruits. Crush the berries, and then place them on blotting paper or a shelf in a dry, airy plant house and expose them to the sun. When it is decided that the seeds are quite ripe, remove them from the old pulp, dry them thoroughly, and place them in packets. The present is the proper time to sow seeds for raising plants to fruit in autumn. Use pans or shallow boxes filled with light soil, and place them on a gentle hot-bed, taking care to keep the soil moist, and to exclude the light by means of brown paper. As soon as the seeds have germinated, move the seed-pans to a shelf near the glass in a warm house, and, later, prick off the seedlings into boxes. They may afterwards be potted into thumb pots and placed in frames. At the end of June they will be ready for their final shift into 5-inch pots, using a compost consisting of three parts loam, one part leaf-mould, and one part well-rotted manure, with a sprinkling of mortar rubble. During the summer, place them out-of-doors on a bed of ashes trodden firmly, selecting a position shaded from the mid-day sun. Pinch off all runners and flowers that appear. During very warm weather, the foliage should be syringed frequently to prevent red spider. When the plants have become well-rooted give them liberal applications of liquid manure, varied by an occasional top-dressing of some rich fertiliser. After the middle of August, the plants may be allowed to set their flowers. Early in September move them to a light position in a cool, well-ventilated house. Support the trusses with small, forked twigs, so that the young fruits may get the benefit of the increased light and air. In storing the seeds, it is well to remember that mice are very partial to them.

Late vineries.—All the Grapes should now be cleared from the vines, and those not required for immediate use should be stored in the usual way by placing the stems in bottles containing water. The room where the bottles are stored should be kept dark, and a temperature of 50°

to 55° maintained. Prune the vines and cleanse the rods with a mild insecticide such as soft soap and quassia extract well mixed with warm, soft water. I do not advise removal of the loose bark of vines and plastering the stems with a mixture of clay and sulphur. The insecticide I have recommended can be worked well into the crevices of the bark by means of a soft scrubbing brush. If the vines have been badly attacked by mildew or red spider, close the ventilators and apply two of three severe vaporisings with a nicotine and sulphur compound. Having cleansed the vines and house, give the walls a coating of lime-wash, remove any loose or exhausted soil from the surface of the borders, and apply a layer of rich loam mixed with some fertiliser and a little lime rubble. Tread the new soil firmly and cover it with a mulch of manure from a spent Mushroom bed.

THE FLOWER GARDEN.

By L. BICKELL, Gardener to the Hon. VISCOUNT GREY,
Adenham House, Hertfordshire.

Woodland walks.—It should be distinctly borne in mind by those who contemplate forming or improving woodland walks that they must not be made excessively gardenesque, or much of the natural beauty and charm will be marred. The ordinary forms of gardening cannot be rigidly applied in such a case, and indeed were this attempted it would be impossible to obtain good effects owing to the presence of game. The first consideration is the path itself, it being desirable that it should be made of such a nature that it will be fit to walk upon in all seasons of the year. Those who have such work in contemplation will be guided, as to the proper drainage required, by the nature of the land; but he will be well advised to err on the side of providing excessive drainage than otherwise, especially when it is remembered what dense shade there is frequently to be seen over such paths, and the injurious effect this shade has upon the growths of the turf. In cases where the path can be suitably composed of grass, it will be found much more enjoyable than gravel. In the presence of such a soil as we have at Adenham, it is necessary to make the best drainage possible. This is carried out in the following manner: We mark out the course of the path that is to be formed, then take out a sufficient depth of soil to allow us to place at the base 1 foot deep of ballast, and on the top of this 2 inches of soil; for the bottom we use coarse gravel, with a drain-pipe through the centre. The turf is laid down in the usual manner on the layer of 2 inches deep of soil, leaving the centre of the path slightly higher than the sides, that it may not hold the water. The present is the best time for carrying out this kind of work, including clearing and planting. For these latter purposes an irregular margin on either side must be cleared, to allow of suitable subjects being planted that will produce a bright and good effect at different seasons. For all soils that do not contain much lime a free use should be made of *Rhododendrons*, especially those of the *R. ponticum* type, seedling plants of this type producing a great variety of colour. Other shrubs that might be included are species of *Berberis*, including *B. aquifolium*, and *Rubus odoratus*. *Rosa rugosa* and its white-flowered variety are both beautiful when in fruit, as well as in flower. Many of the *Spiræas*, including *S. Douglasii*, which is ornamental when in flower and effective also in winter, especially if the plant is cut almost to the ground level every season; *S. confusa* and *S. japonica* and its varieties are to be recommended. *Leycesteria formosa* is valued for its flowers in summer and its green stems in winter, but it requires annual pruning to the ground. *Weigela*, including *W. rosea* and its beautiful varieties; *Pernettyas*, *Ruscus aculeatus* (the Butcher's Broom), *Cornus alba* and the variegated form, which should be cut hard every year to develop the coloration in the stems so valued in the winter; *Gaultheria Shallon*, *Ribes sanguineum* and its varieties (the Flowering Currant), *Hypericum*, *Cotoneasters*, *Hydrangea paniculata grandiflora* and *Olearia Haastii* are all suitable for the purpose. Plants of an herbaceous character might include *Polygonum*, *Iris*, *Symphytum*, *Primrose*, *Epilobium*. Ferns in variety, *Digitalis*, *Funkia*, *Dicentra*, *Polygonatum multiflorum*, and *Helleborus*; whilst bulbs should be freely planted, such as *Narcissi*, *Aconite*, *Bluebell*, *Crocus*, *Muscari*, *Scilla*, and *Chionodoxa*.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR FEBRUARY.

TUESDAY, FEBRUARY 1—Scottish Hort. Assoc. meet.

WEDNESDAY, FEBRUARY 2—Annual Dinner Croydon Hort. Mutual Imp. Society.

THURSDAY, FEBRUARY 3—Linnean Soc. meet.

FRIDAY, FEBRUARY 4—Lecture by Prof. W. Bateson on "Hereditry of Sex," at Royal Institution.

SATURDAY, FEBRUARY 5—Soc. Franç. d'Hort. de Londres meet.

MONDAY, FEBRUARY 7—Surveyors' Inst. meet.

TUESDAY, FEBRUARY 8—Roy. Hort. Soc. Coms. meet. at 12 noon. Ann. Meet of Fellows at 3 p.m. British Gard. Assoc. Ex. Council meet.

THURSDAY, FEBRUARY 10—London Branch of B.G.A. meet.

FRIDAY, FEBRUARY 11—Roy. Gard. Orphan Fund Ann. Meet. and Election of Orphans at Simpson's Restaurant, Strand.

MONDAY, FEBRUARY 14—United Hort. Ben & Prov. Soc. Com. meet.

WEDNESDAY, FEBRUARY 16—Women's Agric. and Hort. Assoc. Annual Dinner.

THURSDAY, FEBRUARY 17—Linnean Soc. meet.

MONDAY, FEBRUARY 21—Surveyors' Inst. meet.

TUESDAY, FEBRUARY 22—Roy. Hort. Soc. Coms. meet. (Third Masters' Memorial Lecture at 3 p.m., by Mr. A. D. Hall, on "The Adaptation of the Plant to the Soil.")

WEDNESDAY, FEBRUARY 23—Fruit Growers' Federation Ann. Meet. at Hort. Hall, Westminster.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—39.3°.

ACTUAL TEMPERATURES:—

LONDON—Hednesday, January 26 (6 p.m.): Max. 34°; Min. 25°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, January 27 (10 A.M.): Bar. 29.4; Temp. 31°; Weather—Slight fog.

PROVINCES—Hednesday, January 26: Max. 40° Cornwall; Min. 22° Scotland N.E.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—Herbaceous Plants, Lilliums and Hardy Bulbs at 12: Roses and Fruit Trees, at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

TUESDAY, WEDNESDAY AND THURSDAY—Sale of Nursery Stock, at the Nurseries, South Woodford, by order of Mr. J. Fraser, by Protheroe & Morris, at 11.

WEDNESDAY—Unreserved Sale of the Bank House Collection of Orchids, on the Premises, at Accrington, by Protheroe & Morris, at 12.30. Perennials, Flowering Shrubs, Lillies, and Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30: Azaleas, Palms, &c., at 5, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Our readers will be highly gratified with the details of the report of the Benevolent Institution, which is printed on another page. The report shows that progress continues to be made, and that the power of the Institution for affording relief is increasing. In 1909 the receipts exceeded all precedent, the disbursements in annuities from the general fund exceeded those of former years, and the Victorian Era and Good Samaritan Funds fulfilled, as heretofore, their purpose of relieving numerous cases of distressing hardship. It is surely something to be thankful for that, notwithstanding the sustained development of the Institution during the past 71 years, it was able last year, without seriously depleting its finances, to expend in the relief of the gardeners and gardeners' widows a sum of £200 more than had been distributed in any previous year. This fact

alone shows that the sympathetic and energetic work which the Committee gives to the Institution is rewarded by an increased desire on the part of gardeners and of the public to do their utmost to assist in furthering its aims. The number of candidates submitted for election at the annual meeting was unusually high, and hence the Committee, being able to recommend the election of only 25 from that list, there were many who suffered disappointment. This may seem to some as if, after all, the Institution is merely able to touch the fringe of the problem of helping the necessitous, for it is undoubtedly to be desired that the funds should be made sufficient to meet all deserving cases. It is this fact that impels us once again to ask our readers to exercise their charity and sympathy and also influence others to contribute.

At the same time, the facts already stated do not summarise all the good that is being done. The report very properly states that "it is impossible to exaggerate the incalculable benefits afforded by the two special funds, namely, the Victorian Era Fund and the Good Samaritan Fund." Though a large number of candidates were unsuccessful at the poll, we believe that they will receive, nevertheless, some assistance during the time that they have to wait for another election. The Victorian Era Fund was established for the relief of those candidates who had contributed to the Institution whilst in a position to do so, and the Good Samaritan Fund for the benefit of those equally in need of help, but who, from negligence or forgetfulness, had failed to subscribe. As Mr. Sherwood pointed out at the friendly supper, the good work achieved by means of these two subsidiary funds is perhaps scarcely so well known or recognised by the public as is the relief provided by the general fund. In the case of the Samaritan Fund, for instance, small grants are frequently made to those needing temporary assistance. A recent case of the kind is within our own knowledge; indeed, the relief was granted upon representations that we were privileged to make. The husband, who had been a gardener all his life, died suddenly after an operation. Other circumstances happened to make the task of the widow unusually severe; for death, at about the same time, removed the employer who was the only person from whom the widow could expect help. In order to obtain a livelihood for herself and her child, aged 7½ years, she attempted to establish herself in a small business, and it was in these circumstances that a small grant was made to her from the Samaritan Fund. We have referred to this particular case to show the value of such a fund; one from which the Committee can afford immediate help in cases where immediate, temporary relief is needed.

As will be seen from the report, there were more elections than it was expected there would be. Owing to deaths and other causes, the Committee were able to declare 23 candidates elected in place of the 20 that had been advertised, and, in addition, further candidates were placed upon the funds owing to the liberality of Mr. Arthur Sutton, Mr. George Monro, and Mr. Harry J. Veitch, whilst a sum of £20 given by Mr. N. N. Sherwood was divided between the unsuccessful candidates.

Another event of the week was the presentation of the portraits of Mr. Harry J. Veitch. One of these was presented to the Council of the Royal Horticultural Society, and is reproduced in our Supplementary Illustration; the other was presented to Mrs. Veitch. The esteem in which Mr. Veitch is held in the horticultural world is a matter of general knowledge. His practical help in all matters connected with charity, his invaluable work in connection with the Gardeners' Royal Benevolent Institution as treasurer and chairman, his liberality and geniality are known to all. The portrait in oils entrusted to the Royal Horticultural Society is a testimony of the general esteem entertained for Mr. Veitch. It is not surprising that the public response was so spontaneous and liberal. The enthusiasm manifested by those who took part in the formal presentation on Tuesday last can—great though it was—represent but inadequately the esteem and affection in which Mr. Veitch is held by all members of the horticultural community. How thoroughly deserved are the good wishes which he receives may be gathered from the speeches made at the presentation dinner, an account of which is given below.

We cordially associate ourselves with this appreciation, and, on behalf of our readers, hope that both Mr. and Mrs. Veitch may be spared to enjoy their well-earned honours for many years to come.

PRESENTATION OF THE VEITCH PORTRAITS.

The presentation took place at a complimentary dinner on Tuesday last in the Hall of the Royal Horticultural Society. The portraits, which were on view, were greatly admired, not only as works of art, but as speaking likenesses.

Mr. N. N. Sherwood presided. On his right sat Mr. Harry Veitch, and on his left Mrs. Veitch. Among the company of about 150, which included several ladies, were Sir Trevor Lawrence, president of the Society, and many well-known and influential gentlemen. After the loyal toasts had been proposed, the Chairman read a telegram from Baron Schröder, conveying heartiest congratulations "to our dear friend, Mr. Veitch, whose services to horticulture, not only to Great Britain, but to the whole world, deserved recognition." The Chairman also read a letter from Col. Holford, regretting that, owing to an operation, he could not be present to take part in a gathering to do honour "to one of the most distinguished and popular horticulturists that ever lived."

The Chairman, amid great enthusiasm, next gave the toast of "Mr. and Mrs. Harry J. Veitch." It was, he said, a regular Veitch evening. The very menu bore testimony to that fact, because the various items were connected with all parts of the world with which Mr. Veitch had had dealings. There were occasions in the life of all that made deep impressions, and that evening was one of them. Mr. Veitch represented an honoured and great name. The firm of Veitch had possibly done more for the introduction of plants from all parts of the world than any firm that had ever existed. The business was established nearly three-quarters of a century ago, the members of the firm coming from Scotland. It was first established in

Exeter, but was afterwards removed to Chelsea, and its name was now a household word. Mr. Veitch had been in business 53 years, and during that time he had endeared himself to all who knew him. It was difficult to praise a man in his presence, but he must say that Mr. Veitch was one who, throughout a long life, had never failed to render aid to the great horticultural charities. With regard to the Royal Horticultural Society, Mr. Veitch was one of those who, with Baron Schröder and others, originated the idea of a Hall for horticulture. He had been a member of the Council of the R.H.S. since 1887, and had rendered great service to the Society at a time when it sorely needed it. It was only those behind the scenes, like Mr. Wilks, who could tell them what giant strides the Society had made during the last 25 years, and Mr. Veitch had always been ready to lend his hand—and his pocket, when necessary—to further the interests of the Society. Further than that, Mr. Veitch had taken the greatest interest in the Gardeners' Royal Benevolent Institution. There were many charities and schools with which Mr. Veitch was connected, but his heart was centred in the Gardeners' Royal Benevolent Institution. He had been a subscriber for nearly 52 years. He presented the Institution with £500 as a thank-offering in commemoration of his silver wedding, and in 1897 he gave £1,000 to the Victorian Era Fund and in commemoration of the Diamond Jubilee. His annual subscriptions, with those of his firm, to the Benevolent amounted to £4,000. When the suggestion was made that Mr. Veitch's portrait should be painted to hang in the Council Chamber, there was a very ready response. There were 309 subscribers. He, Mr. Sherwood, thought the portrait was a most excellent one. When it was found that there was sufficient money left for another portrait, it was decided to have painted, not a copy, but another portrait for presentation to Mrs. Veitch. Then there were still funds left for that dinner, and for each subscriber to have a photogravure of the portrait. In asking Mrs. Veitch to accept the portrait, he expressed the hope that the original might long be spared to her. The Chairman told Mr. Veitch that they all regarded him as a true-hearted Englishman, and they all admired and loved him.

The toast was drunk with the greatest enthusiasm.

Mr. Veitch, who had a hearty welcome when he rose to respond to the toast, observed that much had been said in his favour that he did not deserve. He was deeply grateful to Mr. Sherwood and to the company. It was written that "Pride goes before destruction"; but there was a legitimate pride, and it was that pride he felt that night. It was not, as they knew, an unusual thing for a portrait to be presented and for replicas to be painted, but he had never before heard of two portraits being presented under such circumstances. One was to be hung in the Council Chamber, and in what company! There was already there the portrait of Sir Joseph Banks, the founder and first president of the Society. Then there was the portrait of their most excellent president, Sir Trevor Lawrence, to whom the Society was so greatly indebted; and, thirdly, there was the portrait of their good friend, Baron Schröder. To have one's portrait hanging in such company was enough to make one feel proud. Mr. Veitch then became reminiscent. It was true that he was born in an atmosphere of horticulture. His earliest memories were of a garden in Exeter, where he recollected seeing his dear old father and grandfather—both excellent and practical gardeners—following their calling; and he remembered watching them sowing the seeds sent home by those two most excellent collectors, the brothers Lobb, one of whom went to the East, and the other to South America. He remembered them watching to see the seeds grow. He also remembered the pleasure with which he himself sowed some Orange pips, and he did not quite remember whether or not he pulled some up to see how they were growing! He also tried

his hand at hybridising Fuchsias, but he could not now remember the result! He remembered that glorious old foreman, John Dominy, and both Taylor and Dominy had passed away. He could not forget their good friend Manning, and the influence of all these had induced him to follow in the footsteps of his father and grandfather. Only one person connected with the R.H.S. could recollect flower shows longer than himself, and that was their president, Sir Trevor Lawrence. Mr. Veitch said his first introduction to Chiswick was 58 years ago, when he came to London to see the Great Exhibition of 1851, and he remembered the fine collection of greenhouse plants of Mrs. Lawrence, the mother of their president. His, Mr. Veitch's, family came to London in 1853, and soon after that his father became a member of the R.H.S. His father was always most enthusiastic about the subject. He was never tired of talking about it, so much so that it became the fun of Mr. Veitch and the young members of the family to imitate turning the handle of an organ when the discussion began. Then came the formation of the Fruit and Floral Committees of the Society, the idea of which was worked out in his father's dining-room. Briefly mentioning the names of many who had connection with Chiswick in those early days, he went on to speak of the Benevolent Institution. He wished more money could be spared for it, as many people were still waiting for pensions. Concluding, Mr. Veitch said he owed the warmest thanks to all for their great kindness. He was afraid he gave the artist a lot of trouble. There was one thing that gentleman insisted on, and that was that he should not cut his beard before everyone had seen the portrait.

Mr. J. Gurney Fowler proposed, amid cheers, "The Treasurer and Secretary of the Portrait Fund." He said it was a very pleasant duty to ask them to drink the health of two noted horticulturists, Mr. May and Mr. Wilks. He did not know who was secretary and who was treasurer of the fund; but he would say that anything those two gentlemen undertook was almost sure to meet with a successful response from all lovers of horticulture. That was obvious in the present case by the way in which the subscriptions came in. It was easy enough to put one's hand in one's pocket and pull out the money, but that was only the beginning of the business. These two gentlemen had all the trouble and anxiety which followed, and they all owed them deep gratitude.

Mr. May was the first to respond. He explained that he held that position on the programme merely alphabetically, and in no other sense. It was true that the initiative in this project was his own, but he well knew that many of Mr. Veitch's friends were desirous of showing their appreciation of the great services Mr. Veitch had rendered to horticulture. He and Mr. Wilks determined to issue a joint appeal, and when that was done the way was smooth. Mr. May went on to observe that horticulture had been the Cinderella of the Arts, and he trusted that those in authority in the State would come to the conclusion that it was worthy of recognition. In conclusion, he expressed his gratitude to the subscribers and to the artist, and last, but not least, to Mr. Wilks, who had worked so wholeheartedly and ungrudgingly for the success of the project.

Mr. Wilks next responded, and after thanking all concerned, he explained how the dinner had arisen. A suggestion was made that they ought to have a portrait of Mr. Veitch by some first-rate artist to hand down with the other portraits of conspicuous benefactors which they possessed. The suggestion was jumped at by every one who heard of it, so a circular was sent out by Mr. May and himself. The response was quite beyond their expectations—so much so that they had to seriously consider what to do with the surplus money. They decided to—roughly speaking—use the first guinea of every subscription in getting Mr. Riviere—a famous son of a still more famous father—to paint the portrait to hang, he hoped for ever, on the walls of that great world centre of horticulture. "So that the first guinea or less subscribed by any one hangs there in that picture," said Mr. Wilks, pointing to the portrait destined for the council chamber. Then they decided to use the next series of guineas in presenting Mrs. Veitch with another portrait, "so that if any of you gentle-

men subscribed five guineas to the fund, there in that second portrait hangs *your* money." But there was still a surplus, and so it was decided to send every subscriber a photogravure of the portrait, so that Mr. Veitch's good looks might be almost as well known amongst the gardening fraternity as were his numberless good works. Still there was a small sum left, and it was decided to invite Mrs. Veitch to dinner and offer her their present on the occasion; "and," said Mr. Wilks, "those who subscribed £25 and upwards have the satisfaction of knowing that the balance left out of their generosity—after the cost of the two portraits and the photogravure has been defrayed—it is to that small number of liberal and generous admirers of Mr. Veitch to whom you and I are indebted for this pleasant evening. Further, we did not think the sum at our disposal sufficient to enable us to invite all the 309 subscribers of half-a-crown and upwards, and as we had therefore to draw a line somewhere—compelled not only by money considerations but even more by considerations of space at our disposal—we drew it at the one-guinea subscribers, and invited all of them here to-night." Mr. Wilks impressed on all that not one farthing of any one's subscription was spent on the dinner except of those who gave very largely to the fund. All, and more than all, smaller subscriptions had been used up on the two portraits and the photogravure, and he for one thought that it was an occasion on which they could hardly have done better with the little balance in their hands than by honouring Mr. Veitch by thus honouring his wife.

Sir Trevor Lawrence, who was enthusiastically cheered, rose to propose "The Chairman," a toast which, he said, would be drunk with the greatest heartiness. They had had that evening an excellent chairman, who had been kind enough to provide them with some excellent 1867 port and choice cigars and cigarettes, and fine recitations and music. So that they owed him a great debt of gratitude, not only for the way in which he had presided, but for the way in which he had looked after their comforts. It was no fault of the Chairman that they had felt the cold, and he was told they should regard themselves as hardy herbaceous plants. When he looked upon the portraits, he was reminded of a certain picture, and thought of Mrs. Veitch saying to herself, "How happy could I be with either." They were most admirable likenesses, and he could see in them the twinkle in the eyes which was the peculiar characteristic of Mr. Veitch. The kindly acts of Mr. Veitch would not be easily effaced from their memories. It had been a real pleasure to him to be able to do something, however small, in helping the movement. Returning to the subject of the toast, Sir Trevor said he had had the pleasure of knowing Mr. Sherwood for many years, and of his many and widespread acts of benevolence. Among those acts he subscribed £1,000 to the building of that hall, and the Royal Gardeners' Benevolent Institution, of which Mr. Veitch was so excellent a treasurer, was largely indebted to Mr. Sherwood for many kind and munificent benefactions. It had been a pleasure to sit that evening under Mr. Sherwood's chairmanship. He would like to say, in conclusion, with regard to the firm of which Mr. Harry Veitch was the head, that he had known it for a vast number of years, and he had never heard a single word spoken of it except in its praise. It stood foremost as a thoroughly honourable, straightforward, enterprising and successful firm, and it was the greatest satisfaction to them all that the claims of the firm, and especially of Mr. Harry Veitch on the horticultural world, had been thoroughly recognised, and to know that in this case, at all events, honourable dealing in every form brought its natural and legitimate reward.

The Chairman, replying to the toast, which was enthusiastically honoured, said Mr. Wilks asked him to preside, and would hear of no objections, and now he was glad he had been able to render some small service on such a memorable occasion. Nothing could have given him greater pleasure than to ask Mr. and Mrs. Veitch, both of whom he had known for many years, to accept his own humble words in support of what they all thought. He hoped and believed that evening would remain with them all a happy memory.

HORTICULTURAL CLUB.—The annual meeting and dinner have been postponed to Tuesday, February 22. They will take place, as usual, at the Hotel Windsor, Victoria Street, Westminster, the meeting at 5 p.m. and the dinner at 6 p.m. Sir JOHN LLEWELLYN, Bart., the president, will take the chair. Messrs. J. VEITCH & Sons have kindly promised to decorate the tables with flowers, as in past years.

LINNEAN SOCIETY.—The next meeting will take place on Thursday, February 3, at 8 p.m. The discussion of the "Origin of Vertebrates" will be reopened by Dr. A. SMITH WOODWARD, F.R.S., Prof. A. DENDY, F.R.S., sec. Linn. Soc., and other speakers, with Dr. GASKELL's reply to various arguments.

WINDSOR ROSE SHOW.—The annual exhibition of the Windsor, Eton and District Rose and Horticultural Society will take place on Saturday, July 2. Particulars may be obtained from the hon. secretary, Mr. W. H. BRICE.

VEITCH MEMORIAL TRUSTEES.—At a meeting of the Veitch Memorial Trustees, held on the 18th inst., it was decided to present silver medals to the following gardeners, in recognition of distinguished services rendered by them to horticulture, viz.: Mr. H. J. CHAPMAN, of Oakwood Gardens, Wylam-on-Tyne; Mr. J. MCINDOE, V.M.H., formerly of Hutton Hall, Guisborough; and Mr. W. H. WHITE, Orchid grower at Burford Lodge, Dorking. It was further decided to offer to the Royal Horticultural Society a prize of £5, with a medal, for an exhibit of fruit, to be competed for at the forthcoming show to be held at Liverpool in connection with that of the Royal Agricultural Society; and also £5, with a medal, to be offered at the next show of the Taunton Deane Horticultural Society.

GARDENERS' ROYAL BENEVOLENT INSTITUTION (WORCESTER AND DISTRICT AUXILIARY).—The annual meeting and dinner were held at the Hopmarket Hotel, Worcester, on January 22. Mr. W. CRUMP (Madresfield) presided over a company of about 40. The Hon. Sec. read the committee's report. The balance-sheet showed receipts for the year of £113, £100 of which had been sent to headquarters. The president (Earl BEAUCHAMP) and vice-president (Mr. C. W. DYSON PERRINS) were warmly thanked for allowing their gardens to be thrown open to the public, thus realising a net profit of £29 to the funds. The report and balance-sheet were unanimously adopted. Votes of thanks were passed to all the officers and workers for their valued assistance. The election of officers then took place, and the remainder of the evening was given up to harmony. The management consider such functions to be the means of keeping the members in touch with this excellent institution. It may be added that, should any other county desire to start a branch of the institution, the officers of the Worcester auxiliary would be pleased to place their services and experience to help to found such a movement, free of cost.

BEQUESTS TO GARDENERS.—The late Miss LYDIA RASHLEIGH, of Abbey House, Southampton, whose will has just been proved, left property to the value of £111,105. Her bequests to servants include the sum of £100 and a pension of £75 a year to her gardener, THOMAS JENKINS; also £50 to her under gardener, JOE MORSE. Bequests and pensions were left to her coachman, butler, cook, and other servants, and in addition one year's wages to each servant in her employ not otherwise mentioned, and to such servants who had been more than three years in her employ an additional sum of £3. Miss RASH-

LEIGH was not only solicitous for the welfare of her servants, but also for her dogs, and left sums of money to her butler and coachman to provide for their care. The testatrix was the daughter of the Rev. GEORGE RASHLEIGH, formerly rector of Hamble, Hampshire.

THE BUENOS AYRES EXHIBITION.—In connection with the International Agricultural Exhibition, which will be opened next June in Buenos Ayres, on the occasion of the celebration of the centennial of the independence of the Argentine Republic, the Commissioner-General for Europe informs us from Zittau that applications for space will be received up to March 1.

POLLEN PRESERVING TUBES.—An extremely neat form of tube for preserving pollen has been designed by Mr. F. H. SMITH, an amateur Orchid hybridist, and put on the market by A. J. KEELING & SONS, of the Grange Nurseries, Westgate Hill, near Bradford. Each preserving tube consists of a small glass tube containing a small quantity of calcium chloride held in place by a wad of cotton wool. A glass "spoon," dipping into the tube, serves to hold Orchid pollinia, or

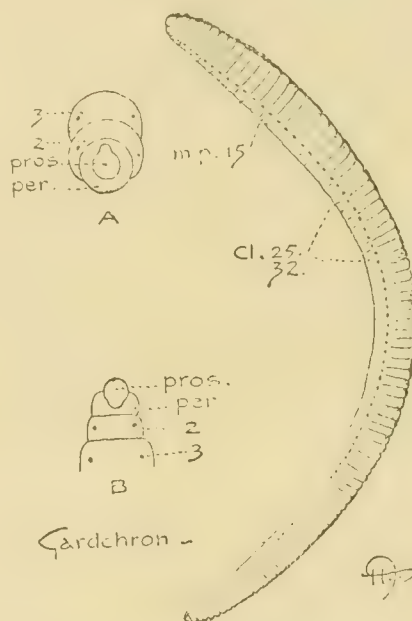


FIG. 42.—ALLOLOBOPHORA (DENDROBÆNA) SUBMONTANA. (Slightly enlarged.)

A. Foreshortened, and B. dorsal, view of prostomium. M.P. Male pore on segment 15. Cl. Clitellum or girdle, on segments 25-32.

to convey to or from the tube loose pollen of other kinds of plants. The glass spoon is held in place by a piece of stout rubber tubing, which fits closely over its end and also over the open end of the tube. Thus the pollen is kept out of contact with the external air and, exposed to the dry air of the tube, may remain good for months.

A NEW CANADIAN "PARK."—The Federal Government of Canada has announced the reservation of some 5,000 square miles of territory lying between the Saskatchewan River and the Yellowstone Pass. The new reserve, which will be called Jasper Park, is about 1,000 square miles larger than the famous Yellowstone Park of America, and thus by far the largest in the world.

THE CATALPA.—Two hundred thousand Catalpa trees planted in Illinois several years ago are now thriving to such a degree that it is anticipated that, in a few years, this new forest, formed in the heart of the prairie, will supply many of the ties for a big railway system having its terminus at Chicago. Similar forests have been planted

in Mississippi. Whereas Oak ties last, on the average, only seven years, Catalpa ties that have been in use more than 30 years show no sign of decay. The wood is also useful for building timber and for furniture-making. It is said that Catalpa fence posts have been known to last 100 years. The seed planted in rich garden soil produces shoots which, when transplanted within a year, spring up rapidly into trees. *Harper's Weekly*.

PUBLICATIONS RECEIVED. *Transactions and Proceedings of the Botanical Society of Edinburgh.* (Edinburgh: Neill & Co., Ltd.)—*Les Graines du Raifort et les Resultats de Leurs Semis*, par J. Brzezinski (Cracovie: Imprimerie de l'Universite.) 1909.—*The Principles of Soil Management*, by T. Lyttleton Lyon, Ph.D., and Elmer O. Fippin, B.S.A. (London: Macmillan & Co., Ltd.)—*Bulletin du Jardin Imperial Botanique de Ste. Petersbourg.* By A. A. Fischer de Waldheim and G. A. Nadson.—*Diary and Blotter*, from Joseph Bentley, Ltd., Chemical Works, Barrow-on-Humber, Hull; a useful diary and blotter for the use of gardeners.—*Irish Farming World Directory and Annual for 1910.* (Dublin: *Irish Farming World*, 15, Fleet Street.) Price 9d.

NEW GARDEN WORMS.

EARLY in September I received from Kew Gardens a consignment of worms which contained one or two specimens of a very active annelid which I had never seen before. As neither of the examples was adult, I waited till further supplies should throw light upon the subject. Later in the month the same species turned up in larger numbers, and in a more advanced condition. The various organs began to show externally, and it was possible also to make a detailed examination of the internal structure. I am now in a position to report on the new discovery, and assign it a position which I think will be accounted satisfactory.

The new worm is intensely muscular and vigorous. The colour closely resembles that of various species of *Lumbricus* and *Dendrobæna*, being an intense brown with a dash of carmine, which does not undergo bleaching even in strong alcohol. The contour is graceful, and in some respects closely resembles *Lumbricus castaneus*, but with a distinct difference. Its head is not the head of a *Lumbricus*, i.e., the prostomium does not cut right through the first segment, but the setæ are paired. When the worms are quite young the segments have narrow golden bands, similar to those of the brandling, but as the worm becomes adult this feature grows less marked, and the warm, brown tone prevails.

It often happens that the position of certain organs is foretold, before the adult stage is reached, by a change in the physiological conditions of some of the segments. Thus we find that young worms are destitute of papillæ where the male pores are to appear, even in those species which show very prominent papillæ in the adult. At puberty, therefore, we look for these papillæ. In the case of the tubercula on the ventral surface of the girdle it often happens that one is able to see them best at this intermediate stage, before the worm has attained the perfect condition, and while the girdle is in process of formation. The worm under review has a light-coloured head (prostomium) and peristomium, is light-coloured also on the ventral surface of the ninth segment, and shows indications of the coming girdle by the colour of the underside of segments 26 to 31. Later on, the two adjoining segments become involved. It is not, however, possible to find any tubercula at this stage, and, if at any later period they really occur, it seems likely that the segments 28, 29, and 30 would be those which carried the organs. Up till the present I have not been able to

demonstrate their existence, though the girdle has been fully developed.

I have studied the internal structure also, but as these papers are not adapted for the use of specialists, I cannot give details of the results. They are of value only for purposes of classification, since all our garden worms can be identified by external characters alone.

It now becomes a question whether such a worm has or has not already been described. The main external features are sufficiently definite—colour, shape, number of segments, position, and arrangement of setæ and girdle, shape of head, and absence of clearly-defined tubercula. In these particulars we find a close resemblance to a Continental worm which was first described by Vejdovsky in 1875 as *Lumbricus submontanus*. Later on (in 1884), when the old genus *Lumbricus* was broken up, he named it *Allolobophora submontana*. Erley, in 1885, called it *Allurus submontanus*, and Vaillant, in 1889, reverted to Vejdovsky's terminology. It was found in the Riesengebirge in Bohemia,

of the two species (he adds) are to be placed the difference in size, number of segments, the position of the girdle, and the dorsal pores.

The worms from Kew differ both from *Veneta* and *Submontana*, but are so closely allied to the latter in almost every essential, that for the present I regard them merely as a variety of *submontana*, but refer them to the genus *Dendrobæna*, on account of their internal structure.

The description of the Kew worm is as follows:

Dendrobæna submontana, Vejdovsky ?, small, active worms, about 2 inches to 3 inches in length, of a warm, brown colour, which does not disappear in alcohol. Inter-segments golden in the young. Prostomium cutting one-half to two-thirds of the peristomium, and possessed of a horse-shoe-shaped insertion, which so far I have not observed elsewhere. Under-surface of segment 9 paler and more tumid. Male pores on segment 15, with inconspicuous papillæ. Girdle usually extending from the 25th to the 32nd segment. No well-defined tubercula, but slight tumidity on 28-30. Setæ paired, but the indi-



(Photograph by Miss S. M. Wallace.)

FIG. 43.—*TRICUSPIDARIA DEPENDENS* (*CRINODENDRON HOOKERIANUM*).

Vejdovsky being a professor at Prague. He gives the following description:—

Length, 100 mm. to 120 mm. Number of segments, 90 to 100. In the young worm the posterior extremity is flattened, but it becomes trapezoid in the adult. The colour is rose-carmine, with yellow inter-segments. Setæ not described, but appear, from the figure, to be strictly geminate or paired. The prostomium cuts one half of the first segment, and the girdle extends from 24 or 25 to 32 or 33. Tubercula pubertatis doubtful. The dorsal pores are distinct, and commence between the second and third segments. Respecting the spermathecae and seminal vesicles there is doubt.

Rosa remarks that he had received a communication from Vejdovsky, from which, together with the foregoing description, he concluded that the worm was closely related to *Allolobophora veneta*, a conclusion which I had also reached independently when studying my examples. But, says Rosa, our ignorance of the setæ (whether or not they are strictly paired), and of the internal structure, leaves us in doubt as to the true relationship. Against the identity

of the two species (he adds) are to be placed the difference in size, number of segments, the position of the girdle, and the dorsal pores. The worms from Kew differ both from *Veneta* and *Submontana*, but are so closely allied to the latter in almost every essential, that for the present I regard them merely as a variety of *submontana*, but refer them to the genus *Dendrobæna*, on account of their internal structure.

We, as yet, know little about the season of the year when the different species of worms attain their highest development, and for this reason it is most desirable that they should be continuously under observation. It seems clear that several of our native species are at their best for scientific observation in the autumn, but some are better seen in winter and others in spring. It would be of great service to science if gardeners would submit samples of worms to the writer, who is engaged in the preparation of a Monograph, to be published in due course by the Ray Society. Tin boxes with loosely-fitting lids, and filled with moss, form the best medium of transit. *Hilderic Friend, St. Asaph, Merioneth.*

THE ROSARY.

SOME INTERESTING ROSE SPORTS.

THERE is something about the reversion of sports to the normal type that we do not understand. The following examples have come under my notice among Roses, and may perhaps be of some interest to readers:—

The Tea scented Rose *Sunrise* was introduced in 1899, being a sport from *Sunset*, this latter variety having been sent out in 1884. *Sunset* was a sport from *Perle des Jardins*, and the latter was a seedling from *Mme. Falcot* (1875). *Mme. Falcot* is quite an old Rose, having been introduced by Guillot in 1859.

The two sports from *Perle des Jardins*, namely, *Sunset* and *Sunrise*, sometimes have distinctive flowers of each variety upon the same plant, but I have never noticed any blending of the shades. Then, again, I have more than once found a perfectly coloured *Perle des Jardins* upon a *Sunrise* plant, although the sport *Sunset* came between these two varieties.

Another somewhat similar case occurs to me. *Heinrich Schultheis* (1883) produced two sports—*Merrie England* and *Mrs. Harkness* (1893). In the latter case it threw a similar sport elsewhere, which was sent out as *Paul's Early Blush*. *Merrie England* is a beautifully striped and splashed blossom—one of the very best of this type—and the colours are a blending of those found in *Heinrich Schultheis* and *Mrs. Harkness* (syn. *Paul's Early Blush*). I have found both of the sports upon the same plant, and also a fairly typical flower of *Heinrich Schultheis* at the same time; yet these Roses are perfectly distinct except upon rare occasions.

The various sports from *Catherine Mermet* do not need much comment, but I would like to mention that *Muriel Grahame* sported with us at the same time as at *Reigate*, and we were on the point of introducing it when the noted Irish firm staged it for the medal. Previous to this, more than one grower remarked upon our limited stock being *Muriel Grahame* before I had seen the Rose elsewhere. It was the same with *The Queen* and *S. A. Prince*, for both the varieties undoubtedly sported from *Souvenir d'un Ami*, but in widely-different localities.

Pride of Reigate and *Pride of Waltham* sported from *Comtesse d'Oxford*, and I have known these revert to *Comtesse d'Oxford* on several occasions.

A. Piper.

TRICUSPIDARIA DEPENDENS.

THIS plant will perhaps be better known to some as *Crinodendron Hookerianum*. In its native habitat, the Chilean valleys, it forms a tree of moderate dimensions, attaining to a height of about 30 feet. It is known locally as the *Patagua*, but there is *Patagua* of *Valdivia*, thus affording another example of the confusion arising from the use of common names. The plant is not hardy in this country except in very favoured localities, including districts of Ireland. Our illustration in fig. 43 is reproduced from a photograph taken by Miss S. M. Wallace, *Ardnamona, Lough Eske*. The blossoms are very showy, being blood-red in colour, and they are attached to the branches by long peduncles. A note on the *Tricuspidarias* by Mr. Fitzherbert appeared in the issue for January 1, p. 5. Mr. Fitzherbert stated that probably the finest specimen of *T. dependens* in this country is to be found in the garden that belonged to the late Rev. Henry Ewbank, at *Ryde, Isle of Wight*, the plant being 10 feet in height and as much through.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 25.—The usual fortnightly meeting was held on Tuesday last in the Society's Hall, Vincent Square, Westminster. The exhibition was much smaller than usual, and, although a considerable portion of the building was reserved for the evening proceedings (see p. 72), there was ample room and to spare for the exhibitors. The most important exhibits were the Orchids, which are always a feature at these shows. The ORCHID COMMITTEE conferred one First-class Certificate and three Awards of Merit.

The FLORAL COMMITTEE made no award to a novelty. The most important exhibits in this section were displays of Carnations, Ferns, Azaleas and hardy flowers.

The FRUIT AND VEGETABLE COMMITTEE had only one exhibit, a few bunches of Grapes, to inspect.

At the three o'clock meeting in the lecture-room, a paper on "Intensive Cultivation of Vegetables in Madeira" was given by Miss E. Armitage.

Floral Committee.

Present: Henry B. May, Esq. (in the Chair), and Messrs. Chas. T. Druery, W. J. Bean, Jno. Green, G. Reuthe, J. T. Bennett-Poë, R. C. Reginald Nevill, W. Howe, Chas. E. Pearson, Chas. Dixon, Arthur Turner, H. J. Jones, Chas. E. Shea, F. Page Roberts, W. P. Thomson, E. H. Jenkins, W. J. James, J. F. McLeod, R. W. Wallace, Herbert J. Cutbush, R. Hooper Pearson, R. C. Notcutt, and George Paul.

Mr. L. R. RUSSELL, Richmond, Surrey, showed varieties of the showy-leaved *Bertolonia*s. The plants were splendid specimens, the colours in the foliage being finely developed. The best varieties were *Souvenir de Gand*—the dark velvet-green leaf is striped and spotted with glistening rose; *Sanderiana*, green and silver coloured; *hirsuta*, dark green, almost black leaves; *Mme. de Bleu*, white spots and ribs tinted faintly with rose; and *Mme. Léon Say*. *Eranthemum Lindenii* has smaller leaves than a *Bertolonia*, but they are very attractive, being yellowish-green with dark markings. Mr. RUSSELL also showed *Azalea indica* in variety, the variegated form of *Ficus repens* and a specimen of *Debregeasea velutina* in fruit. This plant has sage-like leaves and small yellow berries, which are somewhat like tiny yellow Raspberries. It formed the Supplementary Illustration in the issue for April 14, 1906. (Silver Flora Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, staged *Cyclamen*s in a variety of colours, as at the last meeting, also *Chorozemas*, *Eriostemon linearifolium*, *Acacia platyptera*, a showy flowered species; *Camellias* of sorts; small Orange trees well fruited, and a selection of Carnations of the winter-blooming type. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, again showed a collection of Ferns; the exhibit comprised a selection of decorative species, such as *Davallia canariensis* and its varieties *gibberosa* and *pulchella*; *Platynerium alcornoe* var. *Cordreyi*, *P. grande*; *Dicksonia squarrosa*, *Nephrolepis exaltata* in variety, and *Lomaria attenuata* with elegant, arched fronds. Adjoining the Ferns was a group of Azaleas, the plants being well flowered, and representing a good selection of varieties. (Silver-gilt Banksian Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, N., showed a bright group of Carnations attractively staged in vases. Amongst the newer kinds we noticed *Rose Doré*, a fine addition to the rose-salmon varieties; *O. P. Bassett*, a fragrant, scarlet flower with fringed petals; *Fortuna*, a yellow self; *Carola*, dark crimson; the foliage and shoots are exceptionally robust; *Grace Gilbert*, with white markings on a yellow ground; *Lady Ridley*, having yellow petals margined with purple; and *Countess of Onslow*, a well-formed flower, of a peculiar shade, a combination of heliotrope and rose. Messrs. CUTBUSH also showed seasonable hardy flowers and berried plants arranged on a rock-garden ex-

hibit. A batch of *Iris histrioides* major provided a patch of bright blue; we also noticed the clear yellow *Iris Danfordii*, and *Mesembryanthemum uncinatum*, the latter having stout, succulent, cylindrical stems and very fleshy leaves. (Silver Flora Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a long table with greenhouse flowering plants. The beautiful *Javanico-jasminiflorum Rhododendrons* were shown in assortment; one of the largest-flowered is the yellow variety named after King Edward VII. In the centre of the group was a batch of *Calceolaria Burbidgei*, and in front of this a few plants of the blue-flowered *Tillandsia Lindenii*, the colours contrasting finely. A new plant was seen in *Tradescantia White Queen*, the foliage being prettily variegated with silver. There were many pot plants of *Lily of the Valley*, each having a considerable number of strong flower-spikes; *Abutilons Golden Fleece* (yellow), *Boule de Neige* (white), and *The Gem* (red); *Erlangia tomentosa* and *Eupatorium vernale*, not unlike, save in the colour of the flowers, the former having blue and the latter white blossoms; *Freezias*, Oranges in fruit, and a selection of Indian Azaleas. As a separate group, Messrs. VEITCH showed standard plants of these Azaleas, the stem being 3 or 4 feet in length and crowned with a profusion of flowers. They were shown in several well-known varieties. (Silver Flora Medal.)

Mr. H. BURNETT, Forest Road, Guernsey, showed Carnations of the perpetual-blooming type, having large, bright flowers of *Rose Doré*, *Robert Craig*, *Mrs. H. Burnett*, *Countess of March*, *Enchantress*, *Alvina*, *White Perfection*, *White Enchantress*, *Mikado*, and other standard varieties; also several seedlings, of which the pale rose white-tipped variety named after Mrs. Tatton was the most noteworthy. The exhibit was prettily arranged with sprays of *Asparagus* and *Smilax*, and small Ferns. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed blooms of *Primula sinensis*, in almost all colours, and of the ordinary, giant and stellate types.

Messrs. T. S. WARE, LTD., Feltham, Middlesex, showed a rock-garden exhibit of considerable dimensions, planted with a selection of early-blooming subjects. Plants in flower included *Primulas*, *Veltheimia viridifolia*, *Petasites* (*Tussilago*) *fragrans*, *Saxifraga Elizabethæ*, *S. apiculata*, *S. Burseriana*, *Helleborus niger*, *Pulmonaria rubra*, *Adonis amurensis*, and *Iris*es in variety. (Silver Flora Medal.)

Messrs. JOHN PEED & SON, West Norwood, London, showed a collection of Alpine and hardy border plants in flower, with a pretty background of *Skimmia* and *Aucuba* in berry. We noticed some well-flowered plants of *Saxifraga Burseriana*, and a number of succulents in small pots.

Mr. G. REUTHE, Fox Hill Hardy Plant Nursery, Keston, Kent, showed *Iris*es, *Anemones*, *Snowdrops*, *Hepaticas*, *Saxifrages*, and other early-flowering subjects, with a few interesting shrubs. *Erica mediterranea hybrida* is harder than the type, and is in flower throughout the winter. Sprays of *Hamamelis arborea* var. *Zuccarini*, *Daphne Mezereum*, *Garrya elliptica*, and *Grevillea rosmarinifolia* were shown in flower.

Misses. K. & E. HOPKINS, Shepperton-on-Thames, again staged a rock-garden exhibit, planted with seasonable hardy flowers. They also showed tubers of *Tropeolum tuberosum*, which are used as a food by the natives of Peru.

Messrs. BARR & SONS, King Street, Covent Garden, London, showed bulbous and hardy flowers. They had *Lachenalias* of the finer sorts; *Chionodoxa sardensis*, with intensely-blue flowers; *Tulipa saxatilis*; the wild form of *Cyclamen latifolium*; *Galanthus Elwesii*; *Roman Hyacinths*; *Hellebores*, with extra large blossoms; *Erica mediterranea hybrida*; *Daphne Mezereum*, both white and purple-flowered, and many others.

F. H. CHAPMAN, Esq., Rye, showed seedlings of *Freessias*, including one of orange or dark lemon tint, named *Chapmanii*. There were also hybrids raised from *F. Chapmanii* and *F. Amethyst*. These were in flower, although only two years had elapsed since the seeds were sown. Some of the seedlings had rose-tinted blooms. The same exhibitor showed hardy *Cyclamen*s: some were seedlings of *C. ibericum* and *C. latifolium*.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. secretary), W. Boxall, F. Sander, Stuart Low, A. A. McBean, W. Cobb, J. Charlesworth, A. Dye, H. G. Alexander, J. Cypher, W. H. White, H. J. Chapman, H. A. Tracy, Gurney Wilson, J. W. Potter, W. Bolton, H. Little, J. F. Alcock, and F. J. Hanbury.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a very effectively-arranged group of rare Orchids, the most remarkable plant in which was the new and handsome *Anguloa Cliftonii* (see Awards). The centre was of white forms of *Lælia anceps*, all the best forms being well represented. Around them were some excellent hybrid *Odontoglossums*, including fine, dark *O. ardentissimum*, *O. Phebe*, *O. Eleanor*, finely-blotched, home-raised *O. crispum*, a good *O. coronarium* *miniaturum*, *Lælio-Cattleyas*, and other showy hybrids, one secondary cross with *Sophrontis grandiflora*, with bronzy-red flowers, being very distinct. Of rare species were noted *Eriopsis rutidobulbon*, with two spikes; *Ornithidium Sophrontis*, with many scarlet flowers; the white and fragrant *Angraecum arcuatum*, the front row being of the dwarf yellow *Oncidium cheiroporum* and scarlet *Sophrontis grandiflora*.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a good group, in which the forms of *Cattleya Trianae* were of fine quality, the best coloured variety being *C. T. Magali Sander* (see Awards). Among the others were a dark-lipped variety of the *Imperator* class, and *C. T. Colonel Carlisle*, a charming, clear, white variety, with chrome-yellow disc to the lip, the front of which bore a distinct purple spot, the whole flower being of fine shape. The group contained a fine lot of *Lælia anceps*, including the varieties *Sanderiana*, *Hollidayana*, and *Ballantinei*; a pretty, mauve-tinted *Odontodia Chelsiensis*, the reddish-violet *Odontoglossum Groganiamum*; a large and well-spotted *O. harvengtense*, good, dark *O. ardentissimum*, *Cypripedium Maudiae delicatum*, *C. Beekmannii*, and other good *Cypripediums*; the white *Vanda Watsonii* and *Catasetum Gnomus*.

J. FORSTER ALCOCK, Esq., Exhims, Northchurch, Berkhamsted (gr. Mr. Coe), was awarded a Silver Flora Medal for a group of 47 very fine *Cypripediums*, those noted as the best being *C. Earl of Tankerville* and *C. Gaston Bultel*, both with excellent flowers, the latter having a deep claret tint; *C. Beekmannii*, *C. nobile*, a finely-shaped bloom, *C. Minos Youngii*, *C. Aeson giganteum*, *C. St. Alban*, a showy dark flower; *C. A. Dimmock*, varieties of *C. Leeanum*, including *Corona*, and some distinct forms of *C. aureum*, &c.

E. ROGERSON, Esq., West Didsbury, Manchester (gr. Mr. W. C. Price), secured a Silver Flora Medal for a group of rare *Cypripediums* of uniformly good quality. Those noted were *C. aureum* *Surprise*, *C. a. Edippe*, and *C. a. Mrs. E. Rogerson*, a large flower of good substance and distinct colour; *C. Euryades New Hall Hey* variety, and *C. Euryades Price's* variety, the latter clouded with rose-purple on the fine, white dorsal sepal; *C. Hindenium*, *C. chrysotoxum*, varieties of *C. Lathamianum*, *C. Boadicea Rogersonii*, a model flower of good, dark colour; *C. Hobartii magnificum*, the pale, green-netted *C. venustum Measuresianum*, *C. Congo*, a very dark flower; and *C. Olga Bagshaw*, an excellent *Cypripedium*.

Messrs. JAS. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal, for an extensive group, in the back of which were white and coloured *Lælia anceps*, and a good selection of *Calanthes*. With these were arranged a finely-coloured *Lælio-Cattleya callistoglossa*, a nicely-spotted *Odontoglossum Fascinator*, and other *Odontoglossums*, *Pleurothallis Roezlii*, with racemes of curious chocolate coloured flowers; and a good selection of *Cypripediums*, which included *C. Leopoldianum*, an effectively spotted flower; *C. Mr. F. Sander*, a very distinct and pretty variety; a very dark *C. Fairrieanum*, varieties of *C. aureum*, *C. Clio Chardwar* variety, *C. Beekmannii*, *C. Mrs. Wm. Mostyn*, &c.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, secured a Silver Banksian Medal for a group of excellent forms of *Cattleya Trianae*, good *Cypripediums*, including *C. aureum virgiale*, with seven flowers; *C. Leeanum Clinkaberry*, and a curious form of *C. concolor*, with

a vinous-purple flush. Others effectively displayed were *Epidendrum Cooperianum*, *Masdevallia cucullata*, *Bulbophyllum sicyobulbon*, *B. Dayanum*, the pretty, little, yellow *Sophronis grandiflora* Lowii, the front of the group being of the white sprays of *Platyclinis glumacea*.

Messrs. J. & A. A. McBEAN, Cooksbridge, had a group of finely-grown varieties of *Lælia anceps*, the white forms being specially well developed, and various *Odontoglossums*, the front being of the deep, scarlet *Epiphronitis Veitchii*. (Silver Banksian Medal.)

Mr. E. V. Low, Haywards Heath, arranged a group containing some rare *Cypripediums*, including several new hybrids; *C. aureum* Surprise and other varieties; *C. Thompsonii magnificum*, *C. Tracyanum*, an effective and free-flowering hybrid; *C. Mrs. Tantz*, varieties of *C. Euryades*, *Odontodia Thwaitesii*, *Cymbidium longifolium*, &c. (Silver Banksian Medal.)

Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander), sent *Cypripedium Helen H. Holford's* variety (insigne Harefield Hall × *bellatulum*), a large, cream-white flower, slightly tinged with purple, and bearing purple spotting on the white dorsal sepal, and smaller spots on the petals. Also the brightly-coloured *Cattleya Miranda Westonbirt* variety. (See Awards.)

Mrs. NORMAN C. COOKSON, Oakwood, Wylan (gr. Mr. H. J. Chapman), again sent the handsome *Odontodia Bradshawii* Cookson's variety, which secured a First-class Certificate March 9 last year and was illustrated in the *Gardeners' Chronicle*, March 13, 1909, p. 174. The plant bore a spike of ten of its fine, cinnabar, scarlet-tinted flowers. Also *Odontoglossum percutum* Roland, heavily blotched with claret-purple.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed a small, select group, in which were the finely-blotched *Odontoglossum crispum* Lily Bourdas, and *O. crispum* Mrs. Goodson, a very regularly marked flower of fine shape; *O. St. Peter* (Rolfæ × *amabile*), distinct and pretty, being densely spotted and tinged with rose; a good, dark hybrid between *O. Vuystekei* and *O. Rolfæ*; and *O. Wiganianum* Goodson's variety.

R. G. THWAITES, Esq. (gr. Mr. Black), sent a good, deep red variety of *Odontodia Charlesworthii*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cypripedium Wellesleyæ* (*Venus* × *insigne* Harefield Hall), a large, wax-like, cream-white flower, with purplish spotting on the petals and dorsal sepal.

H. J. BROMILOW, Esq., Rann Lea, Rainhill, Lancashire (gr. Mr. W. J. Morgan), again showed the rare albino *Cypripedium Charlesworthii* Bromilowianum, *C. Actæus Gratrixæ*, a fine flower, well marked; a distinct form of *C. Alcibiades*, of good shape and with a peculiar, short lip; and the distinct *C. Lord Wolmer*. (See Awards.)

R. BROOMAN-WHITE, Esq., Arddarroch, Garelochhead, sent two flowers of seedling *Cypripedium insigne* Sanderæ, which displayed in different degree spotting on the dorsal sepal, the flowers being otherwise coloured like the parent.

EUSTACE F. CLARK, Esq., Teignmouth, sent a flower of *Cypripedium Eustaceanum* of excellent shape, and other hybrids.

T. R. E. OLVER, Esq., Plymouth, sent flowers of *Cypripedium Eismannianum*.

Mr. A. W. JENSON, Lindfield, sent *Odontoglossum crispum* Irene, a good rose-tinted variety.

Monsieur MERTENS, Ghent, Belgium, showed a selection of hybrid *Odontoglossums*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Anguloa Cliftonii from Messrs. CHARLES-WORTH & Co., Haywards Heath, a most extraordinary species imported from Colombia. The large flower, borne on an erect stem, is as large as *A. Clowesii*, but unlike any other species in shape and colour. The upper sepal is concave at the base, and continued to a point over the column; the lower sepals concave at the base and meeting in front, where they are formed into narrow blades, both clear lemon-yellow. The petals are broad, erect, and continued into fine points, primrose colour, deep claret at the base and netted with the same colour in the middle

area. The fleshy lip is tinged with cinnamon-brown; the white column spotted with purple at the base. A very fine flower of aromatic odour and effective colouring.

AWARDS OF MERIT.

Cattleya Miranda Westonbirt variety (*Triana* × *amethystoglossa*) from Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander). A pretty hybrid, distinct from others previously shown. The sepals and petals are rose colour, the former having minute purple spots, and the petals an irregular band of darker rose. Lip bright carmine, crimson in front, the disc lemon-yellow.

Cypripedium Lord Wolmer (*Leeanum Clinkaberryanum* × *Euryades*).—Dorsal sepal large and flat, white with distinct purple spotting in the lower part, and additional smaller spotting in the middle arch, giving the flower a very attractive appearance. The petals and lip are also of good form and tinged with brownish-purple.

Cattleya Triana Magali Sander from Messrs. SANDER & SONS, St. Albans, one of the prettiest forms, and of fine shape. The sepals and broad petals are silver-white tinged with delicate pink, the tube of the lip being of the same tint. The finely-rounded front of the lip is bright mauve-crimson, disc yellow.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the Chair), and Messrs. Jos. Cheal, J. Willard, Alex. Dean, Jas. Vert, John Basham, C. Hobday, Geo. Kelf, H. Parr, J. Davis, A. R. Allan, G. Reynolds, Henry Hooper, John Harrison, G. Wythes, Chas. Foster, and H. Somers Rivers.

The only exhibit before this Committee was a collection of three varieties of Grapes, shown by Mrs. BISCHOFFSHEIM, Warren House, Stanmore (gr. Mr. J. W. Funge). The bunches were well preserved, the berries being well covered with bloom and of good colour. They included Black Alicante, Lady Downes, and Apply Towers. (Silver Banksian Medal.)

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 6.—S. GRATRIX, Esq., Whalley Range, Manchester (gr. Mr. Shill), received a First-class Certificate for *Cypripedium* × *Lord Ossulton* West Point variety. The dorsal sepal stands boldly upright and has a faint red line running through the centre. The specimen bore twin flowers.

A First-class Certificate was also awarded to Mrs. S. GRATRIX for *Cypripedium* × *Leeanum* var. *Mary Gratrix*.

J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), exhibited *Cypripediums*, including *C. × Normanii*, a cross between *C. × Sallieri* and *C. Beeckmannii*, *C. × auburnense*, and *C. × St. Vincent*. The first-named received an Award of Merit.

G. SHORLAND BALL, Esq., Burton, Westmoreland (gr. Mr. Herdman), was awarded a Silver Medal for a group of plants, which contained many choice hybrid *Cypripediums*. *Dendrobium bellatulum* was noticed in the group.

W. THOMPSON, Esq., Walton Grange, Stone, Staffs. (gr. Mr. Stevens), exhibited *Cypripedium* × *Our King* (*C. insigne* Harefield Hall var. × *C. × Niobe*), a compact, well-formed flower. This plant, together with those following, received awards: *C. × Golden Gem* (*C. Leeanum giganteum* × *C. callosum* var. *Sanderæ*), *C. × Golden Gem* var. *Ætne*, and *C. × Princess Victoria* (*C. aureum* var. *virginialis* × *C. Actæus* var. *langleyense*).

Mrs. S. Wood, Glossop (gr. Mr. Gould), was awarded a Silver-gilt Medal for a charming group of plants, which included many finely-flowered plants of *Vanda cerulea*. A Cultural Certificate was awarded to the grower. *Cypripedium* × *Mrs. S. Wood* (*C. × Queen of Italy* × *C. concolor* var. *Sanderæ*) received an Award of Merit.

O. O. WRIGLEY, Esq., Bridge Hall, Bury (gr. Mr. Rogers), showed *Lycastes*, principally good forms of *L. Skinneri*. (Cultural Certificate.)

R. LE DOUX, Esq., West Derby (gr. Mr. Fletcher), received Awards of Merit for *Odontoglossum* × *Mrs. R. Le Doux* and *O. crispum* var. *Mrs. Hattie Barciss*.

W. R. LEE, Esq., Plumpton Hall, Heywood (gr. Mr. Corser), was awarded a Silver-gilt Medal for a group of *Cypripediums*. *C. × Rosettii* Lee's var., *C. × Antinæus* Lee's var., and *Odontoglossum* × *Andersonianum* Lee's var. received Awards of Merit.

J. T. CLIFTON, Esq., Lytham Hall, Lytham (gr. Mr. Float), showed many choice *Cattleyas* and *Lælias*, in addition to a general display which included many plants of botanical interest. (Silver-gilt medal.)

J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), exhibited a collection of *Cattleyas* and *Lælias*, for which a Silver Medal was awarded. *Cattleya Triana* var. *Lord Curzon*, *C. T.* var. *nobilior*, *Cattleya* × *Sengæ* (*C. ×* *Ænid* × *Dowiana* var. *Rosita*) received Awards of Merit.

H. J. BROMILOW, Esq., Rainhill, Liverpool (gr. Mr. Morgan), was awarded a Silver-gilt Medal for a group of *Cypripediums*. *C. × Lord Wolmer* (*C. Leeanum* var. *Clinkaberryanum* × *C. × Euryades*) received a First-class Certificate, and *C. × Archimedes Rann Lea* variety an Award of Merit.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), was awarded a Silver Medal for a group in which choice *Odontoglossums* were conspicuous. *O. crispum* var. *Marjorie Ashworth* received an Award of Merit.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver Medal for a group of *Odontoglossums*.

N. GALLOWAY, Esq., Great Horton, near Bradford, was awarded a Silver-gilt Medal for a large group of *Cypripediums*, principally of well-known forms.

C. PARKER, Esq., Ashton-on-Ribble, was awarded a Bronze Medal for a group of *Cypripediums*.

MESSRS. CYPHER & SONS, Cheltenham, put up a fine group of plants, principally well-grown *Cypripediums*. (Silver Medal.)

Other exhibitors were Mr. H. ARTHUR, Blackburn; Mr. W. BOLTON, Warrington; Mr. J. BIRCHENALL, Alderley Edge; Mr. J. ROBSON, Altrincham; and Mr. W. SHACKLETON, Bradford, L. W.

ROYAL METEOROLOGICAL.

JANUARY 19.—The annual general meeting of this Society was held at the Institution of Civil Engineers, Westminster, Mr. H. Mellish, president, in the chair.

The Council in their report stated that they had forwarded a memorial to the Royal Commission, which is now inquiring into the work of the University of London, urging that the time is fully ripe for placing the study of meteorology on a more satisfactory basis and for its inclusion among the subjects for degree examinations. The Council have arranged for a provincial meeting to be held at Manchester on February 23, and they hope that this will be the means of making the work of the Society better known in a district in which considerable attention is already being given to meteorology.

The president presented to Dr. W. N. Shaw, F.R.S., the Symons Gold Medal for 1910, which had been awarded to him by the Council in consideration of his distinguished work in connection with meteorological science.

Mr. H. Mellish, in his presidential address, referred to some relations of meteorology with agriculture. The close dependence of agriculture upon climate and upon the periodical variations of the weather has been recognised from the earliest times, but the relations are of such a complicated character, and the difficulty of separating the effects of the different factors is so considerable, that as much progress as might have been expected has perhaps not been made in applying the data of meteorology to the purposes of agriculture. The president first referred to the writings of various authors on the subject of temperature and rainfall, as affecting the Wheat and other crops, and then proceeded to deal with such questions as the liability of some crops, and especially of fruit, to injury from frosts; the influence exercised by forests upon climate, and especially upon rainfall; and the study of phenology.

He next considered what steps meteorologists could take to further the application of the data of their science to the various problems of agriculture. It is doubtful whether farmers make as much use of the forecasts and weather reports as they might. Possibly this may arise because they are not familiar with the technical terms in which the reports are necessarily couched. This might be remedied in the course of time if instruction on the subject could be worked into the courses at the agricultural schools and colleges. The Royal Meteorological Society has lost no opportunity of urging the importance of the subject to farmers, and also the inclusion of meteorology under the head of Nature study in the schools, and there are reasons to think that this is having some effect. Mr. Mellish, in conclusion, said that from the opportunities which their life throws in their way, farmers should make the best of observers, and if they once become familiar with the teaching of the science and its importance to their affairs, we may hope to derive considerable advantages from their co-operation.

SCOTTISH HORTICULTURAL.

JANUARY 18.—The annual meeting of this association was held in the hall of the Young Men's Christian Association, 14, South St. Andrew Street, Edinburgh, on this date. Mr. James Whytock, president, occupied the chair, there being an attendance of more than 150. The annual report showed that there was a net increase in the membership for the year of 38. The Chrysanthemum show, held in November, resulted in a loss of over £140. The following office-bearers were elected in place of those who retire by rotation:—Honorary president, Sir Archibald Buchan Hepburn, Bart.; president, Mr. James Whytock; vice-presidents, Messrs. D. King and A. Thomson; councillors, Messrs. J. W. McHattie, G. Wood, R. Fife, J. W. Scarlett, A. Brown, W. Smith, W. Galloway; secretary and treasurer, A. D. Richardson. The following motion, adopted at a joint meeting of the councils of this association and the Royal Caledonian Horticultural Society on January 7, namely: "To report to the annual business meetings of both societies that at a joint meeting of the councils held on January 7, 1910, it was agreed to recommend to the members that in the interests of Scottish horticulture it is highly desirable that negotiations be entered into with a view to their amalgamation," was reported to the meeting, and it was resolved to "remit to the council powers to negotiate with the council of the Royal Caledonian Horticultural Society, with a view to amalgamation of the two societies, and to report." The recommendation of the council that the excursion in 1910 be to Gosford and Yester, on August 13, was adopted. Twelve new members were admitted.

The president will deliver his address at the monthly meeting on February 1. At the same meeting a further discussion will take place on the subject of debate at the December meeting, "Is Frost Beneficial to the Soil?" the affirmative of which was argued by Mr. Berry and the negative by Mr. Storrie.

ABERDEEN CHRYSANTHEMUM.

JANUARY 22.—The annual meeting of the members of this society was held in the hall of the Young Men's Christian Institute, Aberdeen. Mr. Andrew Davidson, C.A., presided. The annual report and financial account were submitted. There was a financial loss on the year's working, due to a falling off in the attendance at the society's show held in November. Lord Provost Wilson, of Aberdeen, was elected hon. president of the society, and the hon. vice-presidents were re-elected, with the addition of Mr. Crombie, of Balcownie Lodge, and Mr. Andrew Davidson, C.A. On the motion of the Chairman, Mr. W. J. Middleton, J.P., was unanimously elected chairman of the society for the year, and Mr. A. M. Cocker (of Messrs. James Cocker and Sons, Rose growers, Aberdeen) vice-chairman. The committee was elected, and on the motion of the Chairman, Mr. M. H. Sinclair was unanimously re-elected secretary and treasurer. It was resolved to hold the usual show in the Music Hall Buildings, Aberdeen, on November 25 and 26.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

(ANNUAL MEETING.)

The results of the meeting were recorded in our last issue.)

JANUARY 20.—The following were the proceedings at the 70th annual meeting of the members of the Institution, a note upon which was published in our last issue. Mr. Harry J. Veitch presided, and there were about 50 present.

The Secretary, Mr. Geo. J. Ingram, having read the minutes of the last meeting, proceeded to read the Annual Report and Balance Sheet for 1909. These were as follows:—

REPORT OF THE COMMITTEE.

"For 71 years this horticultural institution has pursued its beneficent course, conferring during that time untold benefits upon those who had claim upon its sympathies and help. In the past year over £200 more has been given from the funds than in any previous year.

Since the committee issued their last report, 26

annuitants have died—17 men and nine widows, and the circumstances of one widow having changed she thereby ceases to derive further benefit from the funds. Of the men, six left widows, three of whom have been placed on the funds at £16 a year, in accordance with Rule III., 10, two are awaiting further consideration, whilst the other case has been declined as not being of sufficient urgency to warrant its acceptance. The committee, after much careful consideration, have decided to recommend the election of 20 annuitants from an approved list of 72 candidates, but they hope it may be found possible after the election to recommend an addition to this number, especially as there will be so many unsuccessful applicants awaiting the permanent aid they so eagerly seek, and whose circumstances are of a pathetically sad nature.

It is impossible to exaggerate the incalculable benefits afforded by the two special funds, viz., "The Victorian Era Fund" and "Good Samaritan Fund." The former, it may be mentioned, assists all those unsuccessful candidates who have been subscribers by grants of money, whilst awaiting election; and the latter gives assistance to those poor people—whether they have been subscribers or not who are in temporary difficulty and trouble, thus helping them to tide over their period of distress and need. Eighty-two cases were assisted from these funds during the past year. The committee cannot emphasise too strongly the value and utility of the "Good Samaritan Fund," which enables them to

STATEMENT OF RECEIPTS AND PAYMENTS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION FOR THE YEAR ENDING DECEMBER 31, 1909.

RECEIPTS.

EXPENDITURE.

	£	s.	d.	£	s.	d.
To Balance	1,011	8	1			
" Amount on deposit	3,530	0	0			
" Mrs. Lewis Hill's legacy	1,607	4	5			
" Annual subscriptions	1,533	10	6			
" Donations at and in consequence of festival dinner, including special gifts	2,226	4	4			
" Dividends and interest	871	17	3			
" Return of Income Tax	42	16	4			
" Legacies:						
Mrs. Rylands and interest	3,031	1	2			
Miss Wolfe	1,000	0	0			
			8,795	9	7	

	£	s.	d.	£	s.	d.
By Pensions and gratuities, including special gifts from Messrs. Sherwood, Sutton, & Monro				4,143	19	9
" Expenses of annual meeting and election					11	8 9
" Rent, firing lighting, &c., including salaries of Secretary and Clerk				571	8	10
" Printing and stationery, including Annual Reports, Polling Papers, Appeals, &c., &c. 140 11 7						
Less advertisements in Annual List			38 7 0			
" Expenses of festival dinner			191 12 2			
Less dinner charges			151 4 0			
" Postages of Polling Papers, Appeals, Annual Reports, &c.			53 4 2			
" Advertisement in "Fry's Charities"			3 3 0			
" Carriage, telegrams, and incidental expenses			18 3 7			
" Bank charges			0 4 0			
" Placed on deposit			788 16 4			
Mrs. Rylands's legacy and interest (part)			3,180 0 0			
" Invested for Good Samaritan Fund: £2,132 Metropolitan 3½ Deb Stock			1,031 1 2			
" Invested for Victorian Era Fund: £1,091 12s. Metropolitan Water Board 5 per cent. Stock			2,007 4 5			
" *Balance with Treasurer			1,000 0 0			
" " " Secretary			1,086 5 6			
			5 6 2			
			1,091 11 8			

£14,254 2 1

£14,254 2 1

In accordance with the rules of the Gardeners' Royal Benevolent Institution, we have audited the accounts, and certify that they are correct, and the books well kept. We also have satisfied ourselves that the securities are in the hands of the bankers.

* £1,200 required to meet the quarterly payments due January 1, 1910.

BERT J. MONRO,
T. SWIFT,
J. WILLARD, } Auditors.

January 17, 1910.

VICTORIAN ERA FUND.—BALANCE SHEET, 1909.

RECEIPTS.				EXPENDITURE			
		£	s. d.			£	s. d.
To Balance, January 1, 1909	...	170	7 1	By Balance in hand, Dec. 31, 1909	...	133	13 2
" Dividends	...	154	12 11	" Investment of Mrs. Rylands's legacy (part)	...	1,000	0 0
" Return of Income Tax	...	8	3 2	" Gratuities	...	100	10 0
" Mrs. Rylands's legacy (part)	...	1,000	0 0				
		£1,333	3 2			£1,333	3 2

T. SWIFT,
J. WILLARD,
BERT J. MONRO, } Auditors.

January 17, 1910.

GOOD SAMARITAN FUND.—BALANCE SHEET, 1909.

RECEIPTS.				EXPENDITURE			
	£	s.	d.		£	s.	d.
To Balance, January 1, 1909	306	16	7	By Gratuities	183	4	0
" Donations	31	1	6	" Investment Mrs. Rylands's legacy (part)	1,000	0	0
" Dividends	81	13	6	" Balance in hand, Dec. 31, 1909	242	13	12
" Return of Income Tax	3	6	3	" Investment Mrs. Lewis Hill's legacy	1,007	4	5
" Mrs. Lewis Hill's legacy from deposit	1,007	4	5				
" Mrs. Rylands's legacy (part)	1,000	0	0				
	£2,433	2	3		£2,433	2	3

T. SWIFT,
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January 17, 1910.

give immediate help in well-authenticated cases requiring aid. As the income only from these special funds can be dealt with, and as, unfortunately, the applicants for assistance are increasingly numerous, the committee earnestly solicit further support to enable them to extend their beneficent work.

The 70th anniversary festival dinner, held in June last, under the presidency of Lionel de Rothschild, Esq., was a marked success, and the committee gratefully acknowledge their great indebtedness to that gentleman for his kindness in presiding, for his warm advocacy of the objects of the institution, and its claims upon the benevolent public—more especially of that class who love gardening and flowers, and feel an interest in those people who in their day have ministered to their pleasures and necessities, and for his generous contribution to the funds. Grateful thanks are also tendered to those gentlemen who acted as stewards or collectors, to the members of the horticultural Press for their continued kind and gratuitous support, to those who sent flowers, to the decorators of the tables, and to other friends too numerous to mention, who in any way so kindly contributed to the success achieved.

The committee again offer their sincere thanks to those noblemen and gentlemen who have been good enough to allow their gardens and grounds to be opened to the public for the benefit of the funds, amongst whom were the Earl Beauchamp (Madresfield), the Lord Northbourne (Betteshanger), the Lady Battersea (Overstrand), Sir Frank Crisp (Henley), Walldorf Aster, Esq. (Cliveden), E. J. Wythes, Esq. (Epping), and C. W. Dyson Perrins, Esq. (Davenham). The committee also accord to their esteemed colleague, Mr. Edward Sherwood, their sincere thanks for his kindness in arranging a dramatic performance in aid of the funds, which realised the handsome sum of £100; also to the Messrs. George Monro Concert Committee for again devoting a portion of the proceeds of their well-known annual concert for the benefit of the institution.

The committee have again to refer to the kindly generosity of N. N. Sherwood, Esq., who gave £20 each, being a year's annuity, to two unsuccessful and incurably paralysed candidates; to Arthur W. Sutton, Esq., who kindly provided £20 for another unsuccessful candidate, also incurably paralysed; and to George Monro, Esq., who gave a year's allowance of £16 to a poor, bedridden, blind widow. These kind gifts have been most helpful to these poor, afflicted people, who have expressed their deepest gratitude for this timely aid.

The several auxiliaries still progress, and happily continue to be a source of much help and interest. The admirable services rendered by the honorary treasurers and secretaries are very gratefully appreciated, viz.:-

BRISTOL AND BATH.

Presidents.	Hon. Treasurers.	Hon. Secretaries.
Col. H. Cary Batten.	W. A. Garaway, Esq.	Mr. Geo. Harris.

WORCESTER.

Rt. Hon. Earl Beauchamp, K.C.M.G.	Mr. John White.	Mr. Percy G. White.
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DEVON AND EXETER.

C. R. Collins, Esq.	Mr. W. Mackay.	Mr. W. Mackay.
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WOLVERHAMPTON.

C. T. Mander, Esq., J.P.	Mr. Bradley.	Mr. Tom B. Dobbs.
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BERKSHIRE, READING AND DISTRICT.

Mrs. Rowland Sperling.	Arthur W. Sutton, Esq., J.P., V.M.H.	Mr. L. Castle.
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LIVERPOOL AUXILIARY.

The Rt. Hon. The Earl of Derby.	A. J. Crappin, Esq.	R. G. Waterman, Esq.
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With the deepest regret the committee have again to chronicle the death of many warm supporters, no fewer than 20 having passed away during the year. Amongst them must be mentioned C. Czarnikow, Esq., a vice-president; Peter Barr, Esq., V.M.H.; W. Roupell, Esq., and David Thomson, Esq., V.M.H., all subscribers for very many years. The support and interest of these kind friends will ever be gratefully remembered, and, as a tribute to their memory, it is earnestly hoped their places may be speedily filled.

It is with much pleasure the committee are able to announce that the Hon. Harry Lawson, M.P., has kindly consented to preside at the 71st anniversary festival dinner in aid of the funds, to be held at the Hotel Metropole on Wednesday, June 22 next. They feel sure he will receive liberal support from all friends of the institution in his efforts on its behalf. The names of gentlemen willing to act as stewards will be warmly welcomed.

In conclusion, the committee desire to reiterate that the institution is a national horticultural charity; it knows no creed save that of need in its eligible applicants; its operations extend throughout the United Kingdom, and whilst it is incumbent upon the committee to acknowledge with the deepest gratitude the practical sympathy and support accorded to their work for so long a period, they plead with all force and earnestness not only for a continuance of that support, but for an increased interest in the work of the institution and further aid to enable them to afford assistance to many more of those sad cases which so constantly and so pitifully are appealing for help.

The Chairman moved the acceptance of the Report and Balance Sheet, but only briefly referred to details. He described the Report as the most satisfactory that had ever been presented. The receipts from all sources amounted to, approximately, £14,000. Those who knew

the early history of the Institution could not but wonder at the extraordinary growth that has been made. Mr. Veitch could only regret that, notwithstanding the increased receipts, with so many appealing for relief, the Institution could not afford its benefits to a larger number. After the Chairman's motion had been seconded by Mr. Alderson, the Report and Balance Sheet were adopted unanimously and without discussion.

The meeting then proceeded to the election of officers, and Mr. W. J. Jefferies proposed the re-election of Mr. Harry J. Veitch as Treasurer. Mr. Veitch, he said, was one of the very best business men this country had ever produced; but he was more than this, for his geniality and kindness were as remarkable as his business qualities. The motion was accepted with very great enthusiasm.

Mr. Geo. Monro next proposed the re-election of Mr. George J. Ingram as Secretary, and this was seconded by Mr. Geo. Wythes and carried unanimously. Mr. A. Dean proposed that Messrs. W. Penrose Atkinson, Peter Blair, James Douglas, Geo. Monro, P. Rudolph Barr, Whitpain Nutting, W. Denning, N. F. Barnes, Percy G. White, and R. G. Waterman be elected members of the Committee. Mr. Dean referred to the representative character of the names now submitted for election, and, after the motion had been seconded, it was adopted unanimously. The auditors were re-elected on the motion of Mr. Denning, and the suggestion of the Committee that each of the auditors should be invited to accept a life membership in the Institution was confirmed. The arbitrators, who, as yet, have never been called upon to decide a dispute, were re-elected on the motion of Mr. Geo. Wythes.

Scrutineers of the ballot were then appointed, and the result of the poll was declared at 4.45. The details concerning the election were published in our last issue.

THE FRIENDLY SUPPER.

In the evening Mr. N. N. Sherwood presided at the annual Friendly Supper. In proposing the toast of "The Institution," the chairman said that they had just held the annual meeting; it had been, as it were, a time of stocktaking, a time for examining their accounts and the progress of their work. It was satisfactory to find that not only were the finances in a good condition, but that the Institution had been able to discharge a greater amount of work in the past year than it had ever done. They had spent in the maintenance of pensioners a sum of £200 beyond the expenditure of any previous year. A very large number of people, including nurserymen, seedsmen, market-gardeners, the foremen in these establishments, and private gardeners, were eligible for the pensions. Mr. Sherwood felt quite sure that there was no better investment than a life membership in the Gardeners' Royal Benevolent Institution. Approximately 2,400 votes were sufficient to ensure the election of a candidate for a pension, and in return for the sum of £20, the Committee credited the purchaser with a total of 2,000 votes. Mr. Sherwood then proceeded to speak of the two lesser funds in which he has always taken the liveliest interest, namely, the Victorian Era Fund and the Good Samaritan Fund.

Mr. Harry J. Veitch, in responding to this toast, said that they had that day elected 25 fresh pensioners, a larger number than had ever been placed upon the funds at one time. Mr. Veitch said he now desired to provide a year's pension for Jas. Boothroyde. This candidate had applied for election on seven previous occasions, and it did not appear that he would be likely to obtain election for some time to come. He was 73 years of age and had been a life member of the Institution for 18 years. Next year, said Mr. Veitch, I shall do my utmost to get him placed upon the regular funds. Proceeding to speak of the general circumstances of the Institution, Mr. Veitch alluded to the fact of there being so many applicants for relief not only from the general fund, but also from the Victorian Era and Good Samaritan Funds. As an indication of the amount of money annually subscribed to the Institution, Mr. Veitch mentioned the fact that the votes counted that day amounted to 110,993.

The next toast, that of "The Committee," was proposed by Mr. George Paul, who testified to the assiduous attention members of the committee

gave to the work of the Institution. Amongst other matters Mr. Paul alluded to the auxiliaries and the excellent work that year achieved through their existence. He said that in Hertfordshire there was, at present, no such auxiliary, but if Mr. Veitch was agreeable to come he (Mr. Paul) would arrange for a meeting in Hertfordshire for the purpose of establishing such an auxiliary. This invitation Mr. Veitch immediately accepted. Responses to this toast were made by Mr. Monro, Mr. White, and Mr. W. P. Atkinson.

Mr. W. A. Bilney proposed the toast of "The Chairman," and the chairman responded. He announced, amid cheers, the gift of £20 to be divided between the unsuccessful candidates at that election.

The Chairman afterwards proposed a toast to Mr. Ingram, the secretary, and this was received with general acclamation.

LAW NOTE.

DEATH WHILST ORCHID COLLECTING.

In the King's Bench Division of the High Court on the 24th inst., Mr. Justice Bray heard an action by which Mrs. Walker, widow of Thomas Walker, who was either blown over or fell over the cliffs at Dover while collecting wild Orchids, sought to recover £500 from the Railway Passengers' Assurance Co. on an accident insurance policy.

When the claim was first made, the company set up the theory of suicide, but this was disproved, and they then pleaded contributory negligence. The matter was submitted to arbitration, with the result that the arbitrator, after hearing the evidence and visiting the scene of the accident, held that the deceased, in his effort to collect the flowers, had incurred unnecessary risk.

Upon this the widow brought the matter into court, and his lordship, without calling upon the company's counsel, upheld the decision of the arbitrator, upon the ground that the question was simply one of fact, and that it had been proved that Walker had undoubtedly incurred unnecessary danger, and had consequently been negligent.

CATALOGUES RECEIVED.

SEEDS.

D. G. PURDIE, 6, Waterloo Street, Glasgow.
W. J. WATSON, LTD., Collingwood Street, Newcastle-on-Tyne.
W. SMITH & SON, Aberdeen.
ARTHUR ROBINSON, 35, Camomile Street, London.
S. AISH, Church Street, Dunstable, Bedfordshire.
J. W. CROSS, Old Grammar School, Wisbech.
HOGG & ROBERTSON, LTD., 22, Mary Street, Dublin.
GLE & SONS, Baginbode, Bedfordshire.
BROWNE, THOMPSON & CO., 86, Patrick Street, Cork.
JOHN R. BOX, Derby Road, Croydon.
JAMES WALSH, Portadown.
H. M. SINCLAIR, 156A, Union Street, Aberdeen.
WM. BAYLOR HARTLAND & SONS, 33, Patrick Street, Cork.

MISCELLANEOUS.

AMOS PERRY, Hardy Plant Farm, Enfield, Middlesex—Delphiniums; Japanese Lilies; Flower Seeds.
BLACKMORE & LANGDON, Twerton Hill Nursery, Bath—Begonias and Carnations.
A. LL. GWILLIM, New Eltham, Kent—Begonias.
W. WELLS & CO., LTD., Mersham, Surrey—Chrysanthemums.
HEATH & SON, Cheltenham—Hardy Plants for rock-gardens and borders.
JOSEPH BENTLEY, LTD., Barrow-on-Humber, Hull—Garden Sundries.
HARDY PATENT PICK CO., LTD., Sheffield, England—Corrugated Garden Spade.
W. WELLS & CO., LTD., Mersham, Surrey—Chrysanthemums, Pentstemons, Phloxes, Perennial Asters, &c.
R. GILL & SONS, Tremough, Penryn, Cornwall—Himalayan Rhododendrons.
W. & F. POAT, Guernsey—Tomato plants grown in steam-sterilised soil.

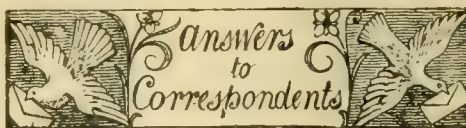
FOREIGN.

M. LEENDERS & CO., Speil-Tegelen, Holland—New Roses.
F. C. HEINEMANN, Erfurt, Germany—Seeds.
R. & J. FARQUHAR & CO., 6 & 7, South Market Street, Boston, Mass., U.S.A.—Seeds.
VILMORIN-ANDRIEU & CO., 4, Quai de la Mégisserie, Paris, France—Seeds.
RIVOIRE & FILS, 16, Rue d'Algérie, Lyon, France—Novelties in Flower Seeds.
H. CORREYON, Floraire, Chêne Bourg, Genève—Seeds.
ARTHUR COWPER, Meadowvale Farm, Berlin, New York, U.S.A.—Gladioli.
ANT. ROOZEN & SON, Overveen, Haarlem, Holland (Agents: MERRIS & CO., 3, Cecil Lane, St. Mary-at-Hill, London)—Bulbs and Seeds.

Obituary.

JOHN SIMPSON.—It is with great regret that we record the death of this distinguished forester and gardener, from heart failure. Mr. Simpson had been unwell for about a month previous to his death, which occurred at his residence, Studfield House, Wadsley, on the 19th inst. in his 73rd year. He was born at Thornhill, Dumfriesshire, and commenced his gardening career in the famous gardens at Dalkeith Palace. He was appointed gardener and forester to the late Earl of Wharcliffe, at Wortley, in 1864, and occupied these posts for a period of 35 years. Subsequently he engaged in business for himself as a consulting forester, his services being in great demand. As a forester he regarded his training in gardening as invaluable. Thirty years ago the name of Simpson, of Wortley, was known to every gardener. His reputation was gained not so much, perhaps, as an exhibitor, although he was a skilful cultivator, as from his writings in the gardening Press. In literature he was a "stormy petrel," the champion free-lance of his day. Forestry claimed him as a warmer advocate than did gardening. He held strong views and convictions in relation to certain systems of forest planting, both for covert and for profit, and also as regards the selection of trees to plant. His theories and practices were frequently assailed by others, but he never appeared daunted, and was always ready to prove his convictions. Many will remember the prominent part he took in the discussion in these pages in the 'eighties on the comparative advantages of inside and outside borders for vines. When head gardener at Wortley Hall, Mr. Simpson frequently acted as a judge at important flower shows in the Midlands and the north. Although formidable and uncompromising in debate, he was nevertheless, one of the most unobtrusive and pleasant-mannered of men. Mr. Simpson was the author of many works relating to forestry, game preservation, and horticulture. In recognition of his work on *The Wild Rabbit*, he was awarded in 1895 the premier medal and diploma of the Société Nationale d'Acclimatation de France. Perhaps his greatest work was *The New Forestry*. It was an attempt to combine all the best features of British forestry with the methods employed on the Continent, and to adapt the latter to the conditions existing in this country. His other works were *Fruit Culture*, *Game and Game Coverts*, and *British Woods and Their Owners*. His widow, a son, and two daughters survive him.

JAMES BARNSHAW.—The news of the death of Mr. James Barnshaw, under most tragic circumstances on Sunday morning, the 23rd inst., will come as a painful shock to many. He and his wife both perished in a fire which took place at his home at Norbury, whilst several of his family sustained injuries. Mr. Barnshaw began his gardening career at Dropmore Gardens, Maidenhead, at an early age, where he remained for several years, coming to London in 1858. In the early 'sixties, he was employed as foreman at Dover House, Roehampton, under Mr. Shearer, and upon leaving these gardens he became associated with the firm of Wm. Bull, of Chelsea, which firm he represented for upwards of 30 years. During this time Mr. Barnshaw raised many varieties of Pelargoniums, and numerous novelties of indoor plants were distributed by the firm. About 15 years ago deceased took over the business of Messrs. Silver & Co. at Norbury and Streatham. Latterly he traded in the name of Barnshaw & Son at Norbury, where a small but prosperous business was carried on. Of a kindly and cheery disposition, deceased was not only well known, but universally respected. His genial countenance will be much missed by his many horticultural friends, but by none more than by the writer. *J. F.*



APPLE SHOOT WITH "GOUTY" SWELLINGS: *N., Bell Bar.* The trouble is not due to fungus: it is caused by the woolly aphis or American blight, which is present in numbers about the injured parts of the shoots you forwarded. The swellings arise as the result of injury by the aphis, which pierce the tender tissue of the shoots for the purpose of extracting the sap. The irritation thus caused results in an abnormal growth of the cells, and irregular outgrowths. American blight is most prevalent in neglected trees, such as have their boughs covered with moss and lichens. The trees should be sprayed with a caustic alkali wash, made with 10 lbs. of carbonate of potash, 100 gallons of water, and 2 lbs. or 3 lbs. of soft soap. Pay particular attention to the swellings caused by the blight, scrubbing these parts well with the specific. If, after this dressing, the pest is noticed in the summer, wash



THE LATE JOHN SIMPSON.

the branches with the paraffin emulsion. Dress the soil about the roots with Kainit, and hoe it in.

CINERARIA UNHEALTHY: *A. S.* There is no disease present in the leaves. The injury is probably caused by eelworms at the roots, but this could not be determined from the specimens sent.

CULTURE OF PEACHES IN A VINERY: *J. W.* It is possible to grow Peaches with vines, but we do not consider it desirable to have permanent Peach trees in the same house as vines. If the vinery is large enough, the better plan would be to divide it by erecting a partition through the middle of the house. This has been done again and again in circumstances like your own. The ventilating gear would also need altering, so that each part could be worked independent of the other. This could be done with very little cost. The vines and Peaches could then be treated according to their special needs. If this idea cannot be carried out, then Peach and Nectarine trees should be cultivated in pots. This method of culture is fast gaining in popularity, especially in places where the glass accommodation is limited. Good varieties of Peaches include Royal George, Stirling Castle, Bellegarde, and Dymond; while of Nectarines, the following sorts may be selected: Cardinal, Pineapple, Humboldt, and Dryden.

GARDENERS' UNION: *W. F. S.* Apply to the Secretary, British Gardeners' Association, Talbot Villa, Isleworth.

GRUBS ATTACKING ASPIDISTRAS: *C. Parkinson.* The small insect infesting the roots of your Aspidistras is the common white spring-tail (*Sinella* sp.). We have found the following method to answer admirably with Adiantums when infested with this insect:—Saturate the soil with tepid water, and, as soon as the insects begin to appear on the surface of the soil, plunge the pot into water at a temperature of 110°F. Repeat this treatment after an interval of six days. We have not treated Aspidistras for this pest, and we would advise you to test half-a-dozen plants in the first instance. If the hot-water method fails, bisulphide of carbon (inflammable) would destroy the pest; but it must be used sparingly—not more than one teaspoonful to a 4-inch pot. It is best applied with a small glass or metal syringe, the nozzle of which should be inserted into the soil at three equidistant places. Do not use an excess of decayed vegetable matter in your potting compost, as this tends to harbour the insect.

HYACINTHS ROTTING AT THE ROOTS: *E. L.* The roots are destroyed by the bulb mite. Soak the lower half of the bulbs in a solution consisting of one part formalin to 50 parts water for half-an-hour. Add lime to the soil where the bulbs are planted.

IMPORTS: *G. H. H. W.* Apply to the Board of Agriculture for the returns. Address, 4, Whitehall Place, London, S.W.

NAMES OF PLANTS: *R. G., Harrogate.* *Cypripedium nitens*, a natural hybrid of *C. insigne*. *C. nitens* is imported somewhat plentifully with *C. insigne* in some importations, the variation being so great as to render it extremely difficult to distinguish the true *C. insigne* from *C. nitens*.—*F. R.* 1, *Pteris longifolia*; 2, *Asplenium lucidum*; 3, *Adiantum caudatum*; 4, *Pteris arguta*; 5, *Blechnum occidentale*; 6, *Selaginella uncinata*.—*V. H.* 1, *Dracena congesta*; 2, *Ficus stipulata*; 3, *Maranta Massangena*.—*W. M., Isleworth.* *Narcissus Tazetta flore pleno*.

PROPAGATING THE AUCUBA: *A. R. B.* The cuttings should be induced to form a callus before being placed in heat. For this reason the shoots should be taken off about the end of September or early in October and placed in a cold frame until March. Select shoots from the tops of the plants, about 4 or 6 inches long, and see that each cutting has a portion of the old wood attached to form a "heel." Place them in 7-inch pots, in sandy soil, making the cuttings firm at the base. Apply water, and, when the pots are well drained of the excess of moisture, plunge them in a bed of ashes in a cold frame, which must be kept closed, except for a short time each morning to dissipate condensed moisture. Early in March the cuttings will have formed a callus at the cut end and are then ready for placing in gentle heat. A hot-bed is suitable, but see that the fermentation of the manure is on the decline. This is probably why you failed with your last batch, in connection with the cuttings having no callus. About the middle of May the cuttings should be ready for planting out-of-doors. In addition to cuttings, the Aucuba may be propagated both from seeds and from layers. The layering is a simple and satisfactory method and may be done either in pots or in the ordinary soil. The Aucuba is extensively employed as a pot plant for winter decoration, on account of its bright berries. The sexes are borne on different plants, therefore the cuttings must be obtained from the female specimens, and a male plant or two should be grown in their vicinity so that the flowers may be pollinated.

SMALL HOLDINGS: *F. M. (Croydon).* Apply to the Board of Agriculture and Fisheries, 4, Whitehall Place, London. A work dealing with the law of small holdings is *Johnston on Small Holdings and Allotments*, by George Arthur Johnston. (London: Effingham Wilson, 54, Threadneedle Street, E.C.) Price 16s. net.

Communications Received.—*Sir H. M.*—Prof. I. B. B. W., C. G. L., F. J. C., H., & S., Leipzig—E. S. S., G. W., R. V., & S., Brussels Nut Exh., Dr. K., Berlin—Miss C. Ure—H. W. P., S. H. A., L. F., A. T., C. H. M., E. G., W. K., J. D. G., J. D., E. A., R. P., H. W. W., R. P. B., J. R. J.



MR. HARRY JAMES VEITCH, V.M.H., F.L.S.,

From a photograph of the painting by Mr. Hugh G. Riviere, presented to Mr. Veitch on Tuesday last, January 25, 1910



THE Gardeners' Chronicle

No. 1,206.—SATURDAY, February 5, 1910.

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THE SPRAYING CAMPAIGN.

WITH further experience it seems desirable to modify our earlier practice in regard to spraying. The character of the season, too, in relation to attacks of birds upon the buds of fruit trees and bushes, leads to variations in times of spraying. As a rule, I have found it necessary to protect the buds of Gooseberry and Red Currant bushes, if not Plum trees also, before the beginning of February. This winter, however has not yet brought any serious attack. Bullfinches began to clear off buds from Red Currants in my private orchard; but over 20 of these birds have been killed, and the Currants have suffered no further damage. A little bud-eating has also occurred in a small plantation of Gooseberries near the homestead; but even this was too slight to call for spraying, and the damage has not extended. Some of Voss's ready-made lime and sulphur wash is ready for use immediately after a serious attack begins. In some winters, however, for some unknown reason, no serious attack takes place. The explana-

tion is possibly that the birds find an abundance of some food other than buds. The immunity does not appear to be due to the mildness of the weather, as some of the worst attacks have taken place in mild winters. Even Greengage buds have not yet been touched, whereas, last year, it was necessary to spray twice before the end of January, to keep birds from attacking them. Probably the destruction of the bullfinches accounts for this particular immunity; for, so far as my observation is a test, sparrows do not attack Plum buds, as they do Gooseberry buds.

A trial of the ready-made lime and sulphur wash will have been made before these remarks are in print, nothing but a dry day, free from frost, being waited for. The trial will be made in a corner of a field planted with Apple trees eight years ago, and guarded by wire netting to keep hares and rabbits from gnawing the bark off the trunks and low branches. Last summer the netting was wanted elsewhere, and it was taken away from the Apple trees under the supposition that they were too old to be harmed by hares or rabbits. This impression was strengthened by the fact that the netting had got bent down in some places, so that even a rabbit could easily leap over it, and yet no gnawing of bark had taken place. Recently, however, this destructive work began, and the netting was restored. It is 5 feet wide, and when 1 foot has been pegged down flat on the ground, in the outward direction, it stands 4 feet high. In spite of this, a hare has been inside, doing further damage, and the trees are to be thoroughly washed in the hope that the stinking lime and sulphur mixture will disgust the mischief-maker. By the way, it is worth while to state that in the rest of the field, planted much more recently than the corner attacked, the trees are protected by a circlet of wire netting of 1-inch mesh around each, and, although some of these protections are only 18 inches high, not a tree has been touched by a hare or a rabbit. Yet the gnawing of shoots cut off in pruning, night after night, shows that many rabbits or hares have been present. This immunity proves, not only the superiority of the plan of encircling each tree to that of netting all round a plantation, at a considerable saving of expense, but also proves that only narrow netting is necessary for the former purpose.

It is desirable to ascertain how this ready-made lime and sulphur wash will stand keeping. Possibly it may deteriorate by chemical action, the lime getting out of combination with the sulphur. It is to be hoped that this will not be the case, as it is highly desirable for fruit-growers to be spared the unpleasant and messy work of preparing this mixture.

Apart from the prevention of bud-eating, as to which, as explained above, there is no regularity, it has been previously my custom to enter into the year's spraying campaign in February by the application of a caustic winter wash. Caustic soda was used for some years, but discontinued as a simple wash in favour of lime and sulphur, 30 lbs. of each to 100 gallons, with the addition for Apple trees of 12 lbs. of caustic soda. The reason of the change was that the lime and sulphur made the wash fungicidal to a considerable extent. It has been decided to defer the spraying until just before the buds of Apples

and Plums burst, in order to test the theory of a large fruit-grower to the effect that the operation, performed then, saved his trees from the aphid attack which was so virulent and persistent last season. His idea is that the mother-queen aphides were exposed on the trees at the period named, and were killed by the wash, or that their eggs were prevented from hatching by the coating of lime and sulphur. He did not include any caustic soda, and this will also be excluded from my mixture, because the safety of using it when buds are on the point of bursting is doubtful.

Another reason for spraying just before the buds burst is that Apple suckers may have begun to appear on Apple trees at that time, in which case they will be destroyed. They appear to have been killed, or prevented from hatching, in a previous season when a winter wash was applied at the end of February. At any rate, there was no attack in 1908, though there had been a bad one in 1907. In 1909 there was a fresh attack, but then the spraying had been done earlier than in 1908. A strong mixture of quassia and soft soap, 10 lbs. of each to 100 gallons, cleared them off almost entirely when applied just after the fall of the blossom, but not until some harm had been done. This season it is hoped that an attack may be prevented.

Before the ready-made lime and sulphur was available, my plan of making it was that of beating 15 lbs. of flowers of sulphur into a stiff paste, to take out any lumps, diluting it to a slight extent, and pouring it over 15 lbs. of quicklime to slake the latter. This seems preferable to sprinkling the dry sulphur over the lime while the latter is slaking. Only just enough water should be added to the sulphur to slake the lime, and the mixture should be well stirred when the lumps of lime have broken up, then left for 20 to 30 minutes covered with a piece of sacking, and stirred well again, strained, and made up to 50 gallons. The straining process is a tiresome and messy one; when there is a good deal of the mixture to be used, it takes up nearly all one man's time to keep on preparing lots of 50 gallons separately.

Lime and salt are used by some fruit-growers as a preventive against attacks of the Apple sucker and the aphid; but lime and sulphur can hardly be less effective as an insecticide mixture, while the latter combination is a fungicide as well, which cannot be said of the former. In the United States, the lime and sulphur mixture has been found nearly as effective as Bordeaux mixture as a preventive of scab in Apples and Pears, and the best of all preventives of leaf-curl in Peaches, when applied after the foliage has expanded. It is important to observe, however, that only the self-boiled mixture, made as described above, can be safely applied to trees in foliage. So prepared, it causes no scorching, or none of any consequence, and less than is frequently produced by Bordeaux mixture. But the artificially-boiled mixture did cause some scorching, probably because more of the sulphur was combined with the lime in it than in the self-boiled preparation. These statements are made, not by way of recommending the substitution of lime and sulphur for Bordeaux mixture after the foliage has expanded, but only in support of the preference avowed for the former over lime and salt for use before the buds open.

Perhaps the lime and sulphur mixture is not quite so effective as caustic soda in cleansing trees of moss and lichen, but when the trunks and branches are thoroughly wetted, the former gives a satisfactory result.

While all my Apple trees will be sprayed with lime and sulphur, a few varieties of Apples and Pears peculiarly liable to scab will have an extra spraying, at about the end of February, with 4 lbs. of copper sulphate alone to 100 gallons of water. Moreover, Bordeaux mixture, the best of all fungicides for use when the foliage has expanded, will be applied as in previous seasons; but only 6 lbs. of copper sulphate and an equal quantity of lime to the 100 gallons, or an equivalent in Woburn Bordeaux paste, will be used just after the blossom has fallen, and no more than 8 lbs. when the leaves are fully expanded. More than the latter quantity is liable to cause scorching, although more is commonly recommended.

It is possible that a third, or even a fourth, spraying with Bordeaux mixture will be necessary to keep Apples of some varieties free from scab. Last season much good was done by a third operation.

If an attack of aphids develops, in spite of the preventive trial, several different washes will be tried against it, and the results will be described after the trials have been made, if they prove of interest. *A Southern Grower.*

EXPERIMENTS IN CURING PLANT DISEASES.

It is recognised by all who have to deal with disease in plants that preventive and curative measures are still of a very primitive nature.

Certain curious experiments in the direction of introducing other methods are not, perhaps, so well known in England as they deserve. There are, for instance, the methods employed by Dorofejew, who succeeded in reviving etiolated shoots of certain trees by grafting them upon other and more vigorous plants.

But Mokrzecki's experiments especially are of importance, and are not very difficult to carry out. He managed to cure several ailing fruit trees by the method of stem-injection.

Certain Apple, Pear and Cherry trees, badly affected by chlorosis or "yellows," presented a sickly and languishing appearance, due to the chlorophyll having developed imperfectly.

He injected into the trunk of an Apple tree (nine inches in diameter) a solution containing 12 grams of iron sulphate. In ten days there was no trace of chlorosis, and, after three weeks, the leaves were dark green and, to all appearances, perfectly sound and healthy.

Now, in the *Gardeners' Chronicle* of 1889, there is an account of the cure of a certain old Peach tree (Princess of Wales) in the Ketton Hall Gardens. This tree had been lifted in November of 1887, and in consequence had been weakened and checked in its growth. In the spring of 1889, it was badly affected by "yellows" or chlorosis. The writer of the note goes on to say that he removed the soil for a foot in depth over the roots. He then made a solution containing three-quarters of a pound of green vitriol (iron sulphate) in the proportion of three-

quarters of an ounce to five pints of warm water, and this was washed in over the roots. The tree was quite healthy in fourteen days, and was still doing well in 1894.

So that Mokrzecki, with only half an ounce of the same material (instead of three-quarters of a pound), and with infinitely less trouble, obtained equally satisfactory results.

Another disease which is sometimes dangerous for Peach trees, and even for Cherry trees, is gumming or gummosis. The cause of the disease is unknown. Mokrzecki used for gummosis of Apple, Pear and other trees, a solution of one per cent. of salicylic acid. An injection of four litres of this solution sufficed to cure them; the gumming was stopped, the wounds healed up and all the trees became healthy and vigorous.

I had myself been in the habit of showing an interesting class-experiment, which depends upon the introduction of some harmless colouring matter into the stem, before I had heard of these experiments.

The method used was exceedingly simple: with plasticine, or putty, a circular basin was made round the stem of a Rhododendron, and was filled with water containing a little red ink or eosine, I then pushed a sharp needle into the bark of the branch, below the surface of the liquid, so as to pass through the innermost part of the bark without touching the wood. By making sections of the stem and examining them microscopically, the eosine is seen to have travelled by the sieve tubes up the stem, and also to have passed by the medullary rays across the wood, staining the outside of the pith and inside of the woody cylinder.

In injecting solutions for the prevention of disease, it would be better to pierce the younger wood, or even to cut a piece clean out with a sharp penknife

I subsequently endeavoured to cure young Larches which were nearly destroyed by the *Peziza* disease (canker), but the result was unsatisfactory, for the flow of resin interfered with the experiment.

Now, in ordinary medical practice, the injection of antitoxins, or of the serum of immune animals, is in frequent use. In plants it is a very simple matter to introduce solutions which will be at once taken up by the sap, and this method of injection certainly seems to afford a promising field for experiments. *G. F. Scott-Elliot.*

NOTES FROM GLASNEVIN.

THE PINK BROOM.

ONE of the most striking characteristics of the New Zealand flora is the scarcity of the pea-flowering plants, so numerous represented in other parts of the world, for the order Leguminosæ is larger than any other Order of flowering plants excepting the Compositæ. It contains over 400 genera and about 7,000 species, and, next to the Grass family, is the most useful to mankind for food. For its size, New Zealand contains fewer Legumes than any other country of equal size, which is curious, seeing that the Order is so strongly represented in Australia, the nearest continent.

Notospartium Carmichaeliæ (see figs. 60, 61 in *Gardeners' Chronicle*, August 24, 1907, pp. 146 and 147) is the Pink Broom of the residents of the middle island of New Zealand, and flowers there about Christmas, being considered one of the most beautiful plants of the colony. Around London and in Ireland the plant is hardy, but in the Midlands of England it would be worth trying on a wall. At Glasnevin Botanic Gardens, near Dublin, there is a good plant about 5 feet high growing in gravelly soil along with other Legumes, such as *Spartium junceum*, &c. *Notospartium* resembles *Spartium* in appearance, except that the leafless, green, whip-like growths are flattened instead of being round.

Last July the Pink Broom flowered with exceptional freedom and formed a glorious mass of pink flowers. The individual blooms are small, but are produced in compact racemes of about 10 to 20 flowers. The best way to propagate the plant is by seeds, which are produced in a good season. The Pink Broom produces true leaves when in a seedling stage, in a similar manner to the *Acacias*. These leaves are small, entire, and orbiculate in shape, while the seedlings of the allied genus *Carmichaelia* are pinnate. *C. F. Ball.*

ADONIS AMURENSIS.

I obtained this species five years ago, but not until the present season has it done itself justice with me, after I had conceived an indifferent opinion of it. Now, however, that it is well established, it proves to be a most valuable addition to the mid-winter border. This has been a most trying winter, very hard frost recurring at short intervals, but although the flowering stems fall quite flat when frozen, they rise again fresh and vigorous in the sunshine with flowers uninjured. This *Adonis* makes a choice companion for *Leucojum vernum carpathicum*, *Hepaticas*, *Erica carnea* and other early things. The following table shows the respective dates of flowering noted here for some winter-blooming plants during the last few years:—

PLANT.	EARLIEST DATE OF FLOWERING.					
	1905.	1906.	1907.	1908.	1909.	1910.
<i>Adonis amurensis</i>	December 18	—	January 24	February 10	March 19	January 8
<i>Anemone angulosa</i>	—	—	—	—	February 15	January 20
<i>Anemone Hepatica</i>	—	January 26	—	February 2	January 2	January 21
<i>Chionodoxa Lucidæ</i>	—	—	—	February 18	March 10	—
<i>Crocus Imperati</i>	—	—	—	—	January 1	—
<i>Crocus vernus</i>	—	January 27	January 27	February 8	January 7	—
<i>Cyclamen coum</i>	December 29	—	January 8	—	—	January 5
<i>Doronicum caucasicum</i>	—	January 15	—	—	—	—
<i>Atalis rosea</i>	—	—	—	—	—	January 20
<i>Eranthis hymnalis</i>	—	January 2	January 22	January 29	January 10	—
<i>Eranthis ciliata</i>	—	January 20	—	January 24	January 10	—
<i>Erica carnea</i>	—	January 10	—	January 24	January 1	—
<i>Galanthus nivalis</i>	December 27	—	January 8	January 20	January 13	January 19
<i>Hacquetia (Dondia) epipactis</i>	—	—	—	December 24	—	January 20
<i>Helleborus frigidus</i>	December 25	—	—	—	—	—
<i>Houstonia cœrulea</i>	—	—	—	February 7	—	—
<i>Iris reticulata</i>	—	—	—	February 16	February 19	—
<i>Leucojum vernum</i>	February 1	—	—	February 7	February 10	—
<i>Leucojum v. carpathicum</i>	—	January 7	January 10	January 20	January 14	January 18
<i>Saxifraga Bursariana</i>	—	—	—	February 14	March 19	—
<i>Scilla bifolia</i>	—	January 28	—	—	February 14	—
<i>Scilla sibirica</i>	—	—	—	—	February 19	—
<i>Vinca minor</i>	—	January 25	—	—	April 2	—

* Generally devoured by mice or pheasants.

Herbert Maxwell, Monreith, January 22.

HARDENING UNFRUITFUL TREES.

WHEN fruit trees fail to flower, we say they are "too strong." What does that mean? The strongest tree has light wood of bearing size, yet it does not bear. Why? Because it has been built up of incomplete material. But what of another tree which fruits freely standing close to the first one, of the same age and size.

Trees have individual constitutions, and mature more or less early, according to their nature, surroundings, and the treatment meted out to them. This treatment includes their assigned shape and vigour, since form and substance govern the fruiting powers of all trees.

It is in the nature of some trees to make vigorous growth and, at the same time, to fruit freely, but, as a rule, vigorous growers are not "mature" enough to bear till well advanced in years. All their parts having been made in haste, they may not contain the "finished" chemical elements that are needed to produce flowers and fruit.

A strong, young or a coarse-growing tree of any age does not absorb from the soil the same materials as a weak grower; or, more correctly, it does not take them up in the same proportions or blend and employ them in the same way or to the same end.

Trees having two "stomachs"—leaves and roots—can absorb and digest, according to their shape and capacity for forming and circulating sap.

To obtain the greatest gain from trees, we must have a sound knowledge of the varied nature and functions of sap. Sap is the whole tree. Nothing we see or deal with but was once sap, and all the contrasting beauties and values are due to sap volume and variation.

The composition of sap changes in proportion to the amount of water evaporated through the leaves and bark. When the atmosphere is dry, every part of the tree wastes moisture, and becomes in some degree more mature. Strong and impotent trees develop too much sap; the fluid from the roots passes up and the elaborated sap from the leaves passes down at such a rate that there is insufficient time for change in the chemical condition of the bark and the leaves and buds to ensure maturity or the power of forming flower-buds.

When the sap is drawn from light roots and ascends slowly, it holds the richest supply of fruit-forming elements, and makes a deposit in the tree most favourable to fruit-bearing. The sun, by its heat and light, steadies and alters the fluid-properties within the tree, and the longer sap is exposed to the light of the sun and the longer it rests in any part of a tree, the more certain is that part to produce flowers.

It is within our power to dry excessively vigorous trees, and thereby alter and improve the value of their sap. The soil should be moderately dry in summer and the activities of the roots checked by any reasonable means. The trunk and main wood should be well exposed to sun-light; heavy branches should be far apart, and take horizontal or dependent rather than upright lines. Severe thinning of the young growth should be carried out in spring and early summer, and no winter pruning should be practised till the tree is brought to a free-bearing state. As a guide to safe practice, it may be said that all winter pruning invigorates, whilst all summer pruning and leaf reduction curbs the power of the roots and moderates the supply of sap to the head. The more the trunk and main wood are shaded, the softer the bark and the greater its capacity for conducting unprofitable sap; hence we should strive to dry, harden, and thus increase the temperature on the surface of strong and unfruitful trees.

Nothing is said here of naturally sterile trees or such as are impotent by reason of occupying an unsuitable soil and climate, for their numbers are small as compared with those which might, with comparative ease, be brought to a state of fertility. *C. Bogue Luffmann.*

NYMPHÆA LOTUS.

THROUGH the kindness of Mr. Holtze, I received, among other Nymphæas, seeds of a white variety of *N. Lotus*, collected in the Northern Territory of Australia. It flowered here last season, and so I am able to give a sketch of the flower and leaf (see fig. 45). It shows much resemblance to the forms from India, and especially those from Africa.

The flowers are small, but the plant is free-flowering. There are four sepals and 14 snow-white petals, 34 white stamens, the anthers being of pale yellow colour. There are 13 carpels,

FLORISTS' FLOWERS.

SWEET PEAS.

JUDGING by the number of lists issued by growers of Sweet Peas, 1910 bids fair to outstrip any previous year, especially with respect to the number of so-called novelties put before the market. A dozen years ago cultivators were spared the worry of having to make a selection from such a number of lists, the late Mr. Henry Eckford's catalogue being in those days the guide to all good things in the Sweet Pea world. Dorothy Eckford, Miss Willmot, Lady Grisel

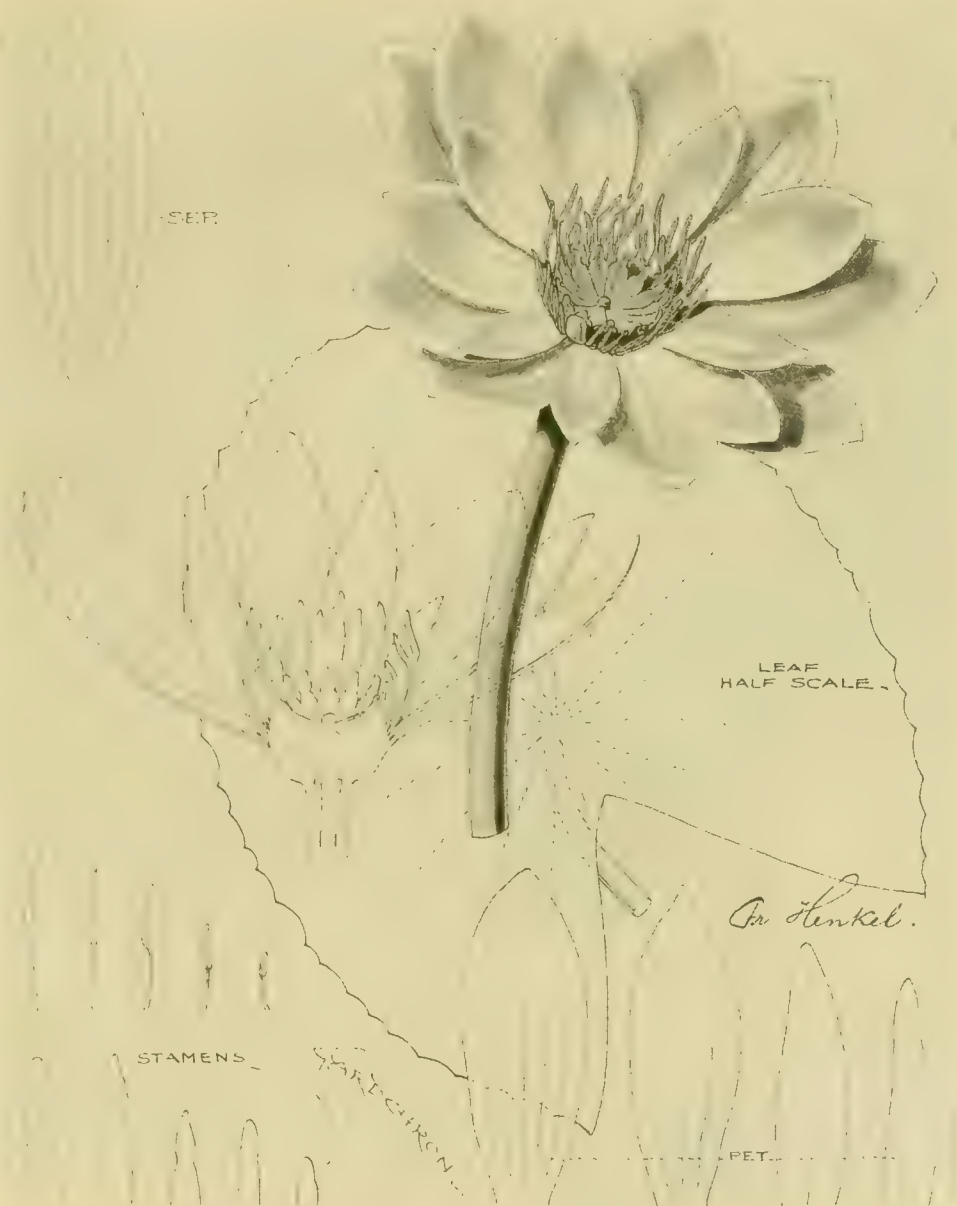


FIG. 45.—NYMPHÆA LOTUS (AUSTRALIAN VARIETY): FLOWER WHITE WITH YELLOW ANTHERS.

and the carpellary style is of sulphur-yellow colour, and glossy. The leaves are dark green, glossy on the upper surface and hairy underneath. They are irregularly blotched with dark spots, and dentated at the margin.

As I have now together true typical forms of *N. Lotus* from nearly all parts of their natural habitat, it will be interesting to compare them whilst under the same cultural conditions. *N. Lotus* has not been noted from Australia previously. *Frederick Henkel, Darmstadt, Germany.*

Hamilton, and Henry Eckford were probably four of the best and most distinct varieties sent out by the Wem firm. The last-mentioned variety has held its own, as far as colour is concerned, but will this season be easily surpassed by the newer variety, Nancy Perkins, of similar shade, a much larger flower, and with the addition of a waved standard, without which latter recommendation no Sweet Pea now appears to have much chance of recognition.

Since the advent of the newer form of flower, certain shades of colour have been vastly

improved upon, especially pinks and carmines, the edged varieties, and the buff and pink combinations, of which Mrs. Henry Bell is a good example. A dark, wavy blue is still, however, to be desired, and it is questionable if the true lavender of Lady G. Hamilton has been reproduced in the newer breed. Varieties described as of primrose shades scarcely warrant that name after the buds unfold, and cream would more truthfully describe the shade of even Clara Curtis, the best of this section.

George Stark, the newest scarlet, will doubtless supplant Queen Alexandra, seeing that it belongs to the wavy form of flower. The Spencer Crimson King Edward is a great advance in size of flower, when compared with the older variety of that name, yet the wings lack the deep self

Plants in this position will bloom quite three weeks earlier than those in the open, and, as a rule, seed freely, which, if they are scarce or desirable varieties, they can be allowed to do when their blooms are no longer required. Needless to say, varieties that are subject to sun scorching should not be chosen for these positions.

New and enthusiastic exhibitors of Sweet Peas appear year by year, and 1910 will no doubt see some keen struggles for supremacy. The finest blooms I noted on the exhibition table last season were those staged in the 24-bunch class at Newcastle-on-Tyne, by Mr. Geo. Keith, Wallington Gardens, Northumberland. This exhibitor's flowers were of grand colour and size, and they were beautifully set up. *Thomas Bolton, Powderham Gardens, Exeter.*

"Messrs. Sander & Sons showed in their group of Orchids a very striking plant under the name of *Bulbophyllum Ericssonii*. On seeing it, I was greatly impressed by its differing greatly from the type plant of *B. Ericssonii* which flowers freely at Tring Park every year, and which was illustrated in the *Gardeners' Chronicle*, January 23, 1897, p. 61. The most obvious difference was the rigid, upright position of the odd or dorsal sepal, the larger purple spots on this and the remaining segments, and the darker colour of the lip. On an examination of the distinguishing characters of the species of this section of *Bulbophyllum*, viz., *B. Ericssonii*, *B. virescens*, *B. Pahudii*, *B. galbinum* (illustrated in the *Gardeners' Chronicle*, July 20, 1907, from the Tring Park specimen), and *B. uniflorum*—R.



FIG. 46.—*BULBOPHYLLUM BINNENDIJKII*: FLOWERS YELLOW AND PURPLE.

colour that is noticeable in King Edward VII. Etta Dyke now leads in the list of whites, but, shorn of her frills, would still lack the pure white and substance of Dorothy Eckford.

The uncertainty of autumn out-door sowing induces many growers to sow in boxes or pots in November, with a view to having blooms as early as possible in the ensuing year. A few sturdy plants from this sowing may be now potted singly into 5-inch pots, and, when well rooted and about 1 foot high planted out in two's and three's against a south or west wall, where any spare space occurs between the wall trees. Wire netting may be used as a means of support, and, if the plants are given water when they require it, they will soon go ahead.

ORCHID NOTES AND GLEANINGS.

BULBOPHYLLUM BINNENDIJKII.

We are pleased to be able to give an illustration of this remarkable species from a photograph of a plant which flowered in the collection of Sir Trevor Lawrence, Bart, K.C.V.O., Burford (gr. Mr. W. H. White).

At the Temple Show, May, 1907, Messrs. Sander & Sons, St. Albans, showed *Bulbophyllum Binnendijkii* as *B. Ericssonii*. It attracted considerable attention, and was the subject of the following communication from the Hon. Walter Rothschild (*Gardeners' Chronicle*, August 31, 1907, p. 161):—

Reinwardtii, I found that Messrs. Sander's plant is *Bulbophyllum Binnendijkii*, J. J. Smith—*Cirrhopetalum leopardinum* T. and B."

Comparison of the references cited by the Hon. Walter Rothschild amply support his conclusions, the peculiar arrangement of the yellowish and purple flowers of the species under notice—like the cap of a pagoda—being different from that of any other in cultivation.

The plant, like the others of its section already mentioned, grows freely in a warm, moist house. It may be grown either in a basket or a shallow pot, though the basket is probably better suited to the section. It is evergreen, and its fine, broad, green leaves render it—apart from its flowers—an ornamental plant.

TULIP BIFLORA VAR. TURKESTANICA.

THIS is one of the few Tulips which bear more than one flower on each stem (see fig. of branched Tulips in *Gardeners' Chronicle*, May 15, 1909, p. 317). Others species having this characteristic include the native *T. sylvestris*, which sometimes produces two flowers on a stem, and the recently-introduced *T. præstans* from Turkestan, which has two or more. The typical *T. biflora* is a native of the Caucasus, and has been in cultivation since the beginning of the last century. It blooms in April, and the flowers are white with a yellow eye. The Turkestan form is larger in all its parts, and more robust in growth, often producing four and five flowers on a stem. Its value as a pot plant is shown in the accompanying illustration (fig. 47) of a pan of this charming Tulip which was grown in a cold greenhouse. The species flowers with the same freedom out-of-doors in a sunny border, being quite hardy. The bulbs are small and have a woolly tunic, while the leaves are long and narrow, about $\frac{1}{2}$ inch broad. The flower-stems attain a height of 6 inches to 9 inches. W. I.

NOTICES OF BOOKS.

A BOTANIST'S POCKET BOOK.*

FIELD botanists will welcome a new edition of this excellent little work, and they will at the same time note with satisfaction that the present issue—the 13th since the original handbook was published in 1872—has been revised and re-edited by G. Claridge Druce, the well-known author of the *Flora of Oxfordshire*.

The general plan of the book, including that of the artificial keys to Natural Orders and genera, has been retained, although the latter involves a certain amount of disagreement with modern botanical terminology, and is, therefore, open to criticism.

The scope has been considerably extended, and although the book is only intended for work in the field and not in any way as a critical work of reference, all the important species and varieties, as well as the more completely established aliens, are now included.

Mr. Druce has found it necessary, as the result of extended personal observations, to make numerous alterations in the descriptive part of the work, especially with regard to the "habitat" and "distribution" of species.

The Butterfly Orchid (*Habenaria bifolia*), for instance, was described in the older edition as generally growing in moist meadows; we think most botanists will agree with the author of the new edition that it is much more common on heaths and in woods. *Ruscus aculeatus*, again, is more frequently found growing in "copses" than on "heaths," and similarly with many other species.

A useful feature is the marking of all aliens, however well established, by an asterisk.

We echo the wish of Mr. Druce that the use of the book by students may do much to increase the love of field botany in Britain. M. C. R.

TWO VOLUMES ON SWEET PEAS.

The *Book of the Sweet Pea*, one of Lane's half-crown illustrated handbooks, may be recommended as one of the best of the series. The history of the plant is given in full, but some of it, perhaps, somewhat incorrectly; in particular, in the note on the waved type, Henry Eckford's right, as a raiser of a Pea identical with Countess Spencer, is not noted, nor is

Unwin's type of the variety, raised about the same time, mentioned. The book contains 29 chapters, in which everything, including a bibliography connected with the Sweet Pea, finds a place. It is remarkable that the old custom of sowing more than one seed in a pot should be recommended, and equally so that so close planting as 6 inches apart should be recommended for garden decoration. I find 2 feet quite close enough for the more recent introductions when one plant is raised in a pot. Older kinds need hardly so much space. Mr. Crane recommends planting in rows in preference to clumps, but the latter practice is more suitable for the north, though personally I have always kept to rows. There are useful remarks on the value of the Sweet Pea for decorations of all kinds, but many will demur to the remark that "all the Sweet Peas are suited for displays made in the daylight, none of them being amiss." The fact is that the great majority of varieties may safely be set aside and a limited choice made of the more select. The book includes a vast amount of information about soils, manures, staking the plants, propagation, cutting the flowers, exhibition notes, diseases, and lists of varieties. The list of varieties is, perhaps, a little out of date.

seems to be the "black-purple" of Abercrombie, and that it was preceded by the scarlet. The chapter on the structure of the flowers, fertilisation, and a resumé of Mendel's laws, is specially interesting—probably the most valuable in the book. Seed saving, raising of plants, soils and manures, planting and supporting, positions Sweet Peas are best fitted to occupy, and their place as exhibition, market, and greenhouse flowers are all fully treated, and are followed by an illuminating chapter on pests. The chapter on varieties is occupied largely with colour, and I am somewhat surprised that Mr. Wright has nothing to say there concerning the attractiveness of form, of the folded-in wings of Frank Dolby, for instance, or the exquisite form of Mrs. Hardcastle Sykes and Elsie Herbert as compared with the more expansive floppiness of The King. There are chapters on Sweet Peas in Scotch, Irish, and other countries, and on woman's influence on Sweet Peas. There is an A.B.C. guide to growers, &c., and a list of varieties, with raisers' names and selections for various purposes. The volume is well illustrated. In the next edition Mr. Wright should spell "Lady Grisell Hamilton" correctly. R. P. Brotherston.



FIG. 47.—TULIPA BIFLORA VAR. TURKESTANICA: FLOWERS WHITE WITH YELLOW EYE.

Mr. WALTER P. WRIGHT's new book* is not merely a book about Sweet Peas—it is that, but it is also a happy combination of cheery humour, pathos, and much of the milk of human kindness. It is discursive and versatile and perhaps poetical, but that I am not sure of, notwithstanding that its author sings many lays with Sweet Peas for the theme. Whilst conveying much information to the reader, Mr. Wright is seldom didactic. He teaches, as a rule, by broad hints rather than by circumstantial details. He may exhibit a preference for training Peas on wire or on strings, but he does not discourage the employment of sticks. Fully alive to the advantages of clump culture, he does not shut his eyes to the practice of others who set out the Peas in lines. He notes the vast importance of thin seeding, but has no quarrel with the person who sows five seeds in a pot, rather than one. In the first 11 chapters he carries the reader through the more practical details, beginning with the history of the plant, regarding which, I may remark, that the "black" Pea of Mason

NOTES FROM A "FRENCH" GARDEN.

THE Carrots in the frames are now coming through the soil, and should the spring prove favourable, they ought to be ready early in May.

The Lettuces in the frames are growing very tender; this is due to the mild weather and the increase of temperature after the lining of the frames.

As we have sown Carrots in the cloche beds as an intercrop, we shall only plant two Little Gott Lettuces on the south side, and one Cos Lettuce (Paris Green Flat) under each cloche.

The Cos Lettuces (Paris Grey) are planted in the space between the cloches as shown in the diagram in the *Gardeners' Chronicle*, February 25, 1909. These Lettuces are set 8 or 10 days after those planted under the cloches to form a succession later in the season. Where cloches are not used for forcing Cos Lettuces on hot manure beds, they are utilised for growing in a sheltered corner either three Passion Lettuces, or four Little Gott, or two Paris Grey Cos, or one Paris White Cos under each cloche. When Little Black Gott is the variety grown it is necessary to

* *Hayward's Botanist's Pocket Book*. Revised by G. C. Druce. (London: Geo. Bell & Sons.) Price 4s. 6d.

† *The Book of the Sweet Pea*, by D. B. Crane. (London: John Lane.) Price 2s. 6d.

* *A Book About Sweet Peas*, by Walter P. Wright. (London: H. & A. P. Brothers.) Price 2s.

give a good dressing of decayed manure to obtain fine heads. In this case the cloches are at liberty early in April for Endives or early Dwarf Beans.

The Radishes sown in the cold frames are coming through the soil, and the Lettuces are well established. The covering of the cold frames at night is absolutely necessary in frosty weather, after growth is well started.

We have planted Passion Palatine Lettuces in the open ground 9 inches apart, but in poor or weedy ground 10 inches space each way is necessary.

Radishes are profitable as a market crop early in spring. To obtain a crop to come between that obtained from frames and open ground crops we make a small hot-bed 6 inches thick and sow the Radishes. In frosty weather the bed is covered with mats.

The thinnings of the Onions from the seed bed have now been planted to form a succession to those set early in October. This batch looks extremely well; the ground will be hoed at the first opportunity. We made a hot-bed 9 inches thick with three parts dry manure and one part of fresh manure to sow Cauliflowers (Driancourt) last week. The seeds were sown very thinly as this batch is not pricked out, and the tiny plants are liable to decay round the stem. These Cauliflowers are planted to replace the Cos Lettuces set now under the cloches. *P. Aquatics.*

The Week's Work.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Melons.—Preparations should now be made for planting the seedling Melons raised early in January. These early plants are best grown on a bed of fermenting materials, which will assist in providing the necessary warmth, so that less fire-heat can be employed, thus reducing the danger of attacks of red spider. Obtain equal parts of stable manure and leaves, the latter preferably of Oak or Beech, and mix them in a heap out-of-doors. Turn the heap every third day until the rank vapour has passed off, placing the outsides of the heap in the middle when turning it. Having thoroughly cleansed the Melon house, make up the hot-bed, treading the materials firmly as the work proceeds. The soil is best placed in mounds at distances of 18 inches apart; each mound should consist of about one 10-inch potful of soil. If good loam is obtainable, little else will be required beyond a small quantity of old mortar rubble to keep it sweet and porous. A rich soil induces a rank, sappy growth, and does not favour the plant's fruiting. Stimulants may be applied later in the form of liquid manure or rich top-dressings. When the soil has been in the house long enough to become warmed through, the Melons should be planted. Make the soil quite firm about the roots, but leave the surface of the heap rough and lumpy. Give the roots a good soaking with water, which should not be colder than the atmosphere of the house. The Melon loves warmth and a moist atmosphere. The temperature of the house should not be much lower than 70° at night-time, allowing a rise of 5° by day with a further increase of 10° when the sun is shining brightly. Syringe the young plants once or twice daily and keep the atmosphere moist by frequently damping the paths, &c. Admit fresh air whenever the weather will permit, but prevent draughts and sudden lowerings of the temperature, and always close the ventilators before the sun's heat declines. Great care is necessary in ventilating during cloudy weather, as the sun may appear at intervals, causing the temperature to rise and fall quickly. Although Melon plants enjoy full exposure to bright sunshine, it is advisable to provide a light shading for a few hours when a bright day occurs after a spell of dull, cold weather, as the foliage will be soft, and, therefore, liable to become scorched. A little whitening and water made very thin, syringed on the glass, will prevent such damage, and this shading may easily be removed from the panes when the plants attain greater vigour. Stop the main shoot about 6 inches from the top of the trellis, and pinch the laterals at the second leaf beyond the fruits.

Cucumbers.—These also may now be placed

in their fruiting quarters. Make a hot-bed as advised for Melons, but add a fourth part well-decayed manure to the loam. Sow seeds of Cucumbers and Melons for successional crops.

American vines.—It is best to have a separate vinery for these, as they need different treatment from that required by ordinary vines. They are not adapted for forcing, and should be allowed to start into growth naturally. Syringe the rods daily, be sparing with fire-heat, and afford a little ventilation all night during mild weather. When the vines are in flower, keep the atmosphere dry, and carefully pollinate the flowers daily about noon. Do not remove any bunches until it is seen which have set their fruits. Very little thinning of the berries is necessary, beyond removing those which are seedless or misplaced.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Strawberries.—If the permanent beds of established plants were not cleared of all rubbish in autumn, this work should be carried out as soon as a favourable opportunity presents itself. Following this, the bed should be given liberal sprinklings with some approved artificial manure or bonemeal, and this dressing should be lightly forked into the surface soil. I do not recommend applications of farmyard manure at this period of the year, for, when applied at this season, it affords lurking places for all kinds of insect pests; such mulching should be applied in the autumn. Fresh plantations that were planted last August should have the surface soil frequently hoed as soon as the weather is dry enough. Any gaps that occur in the beds should be made good with the plants that have been kept in reserve for the purpose. If it is intended to make new plantations next autumn, a piece of ground might be selected which has been trenched and liberally manured for the first and second early varieties of Peas. Such a piece of ground would be in excellent condition for the Strawberries after the Peas are gathered, which will be about the second week in August. It would require merely to be hoed over and have all the weeds and rubbish removed. A good dusting of soot might be applied and this forked into the surface ground. Runners required for planting at that season should be layered early, so that they may be well rooted by the time planting is to be done. Strawberry beds are frequently kept too long in bearing, although some varieties will continue to bear good crops for a longer period than others. As a rule three years is long enough for a bed to bear. Varieties that succeed best on a light soil in these gardens are Royal Sovereign, Laxton's Reward, Trafalgar, Gunton Park, and Laxton's Latest. The best perpetual-fruited varieties are St. Antoine de Padoue, Laxton's Perpetual, and St. Joseph.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

The cool house.—There are many plants in this house, particularly *Odontoglossum crispum* and its varieties, that are now developing their flower-spikes. These should be frequently examined for slugs, otherwise the spikes may be devoured before the grower is aware that they are showing. If slugs abound, the rare and special Orchids should be isolated; this may be done by placing the plants on inverted pots or pans, which may be stood in shallow pans filled with water. It is also a good plan to protect the flower-spikes (in case any slugs may be present in the soil or Sphagnum-moss) by placing a ring of wool or wadding at their base. Place some pieces of Apple, Potato, and fresh greenstuff upon the surface of the compost, and examine these baits several times during the evening, also at daybreak in the morning. Keep the plants fairly moist at the root, but do not water a plant until the compost is nearly dry. When the flower-spikes are about 6 inches to 8 inches in length, it is advisable to tie them up straight to neat sticks, making the top tie just below the bottom flower-bud; by this means the spikes will have a fine arching appearance when the plants are in bloom. For this purpose, we use thin Teak wood sticks, which are very neat and durable. It is very detrimental to the plants to allow large

spikes of bloom to remain on them for a long period of time or to permit small, imported plants in a weakly condition to carry too many flowers. In the case of strong, well-rooted specimens, it is well to cut the spikes after the flowers have been open a week or ten days. They may be placed in water in the cool house, or used for indoor decoration, for they will retain their beauty for several weeks. In cases where small plants are flowering for the first time, it is desirable to remove most of the buds as soon as possible, leaving just one or two to open to determine the variety, and, as soon as this is known, cut the spikes, and do not allow the plants to bloom again until sufficient strength has been gained to bring forth strong spikes of blooms of good size and substance. Plants that have deteriorated from various causes should not be allowed to produce spikes until they have regained their former health and strength. Such plants as *Odontoglossum grande*, *O. Schlieperianum*, and *O. Williamsii*, that are now at rest, should be kept on a high and dry shelf in this house; they will require but little water at the root till growth recommences. Plants of *Maxillaria Sanderiana* are now developing their flower-spikes, which, as a rule, go in a downward direction, and those that are in pots should be examined and pieces of crock or glass may be placed under the spikes, so as to guide them safely over the surface of the soil, otherwise they will push through the compost into the drainage and be lost. Those that are growing in shallow baskets will require no such attention, as the spikes will grow into space naturally. The strong-growing *Oncidium*s as *O. macranthum*, *O. superbiens*, and *O. undulatum*, &c., that are now showing their flowering spikes, will for some time to come require constant attention, as, owing to the rambling habit of the spikes, which often grow to 8 feet or 12 feet in length, some amount of training is necessary. In doing this training, the tips of the spikes should always be kept toward the roof, and, if possible, in a southerly direction. Four or five strong stakes may be placed firmly inside the edge of the pot, and the spikes trained around these, keeping the spikes at the commencement of tying as low down to the rim of the pot as possible. Some growers prefer to train the spikes along the roof of the house, and, where this is done, it is advisable to stand the plant at one end of the house, so that the spikes may be tied southward. These plants will need an abundance of water until the flowers open.

THE FLOWER GARDEN.

By E. BRACKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The weather.—Since my last Calendar was written severe frost has interrupted the carrying-out of outdoor planting operations. On the morning of the 27th ult. we registered 18° of frost. The weather has since changed, but it may be well to remark here that, on such occasions as I have alluded to, it is impossible to take too much care of tender plants in frames. They should be covered as much as seems necessary, and care taken that, in uncovering them, any plants that have been subjected to a lower temperature than is good for them shall not be suddenly exposed. In cases where actual freezing has taken place, the thawing should be made as gradual as possible. Tubers which have been stored in dry places for the winter also need to be examined at such times, in order to be sure they are not suffering from frost.

Dahlia.—If it is desirable to increase the stock of any particular variety of Dahlia, propagating operations may now be commenced. One or more of last year's tubers, according to requirements, should be introduced to a house where the atmospheric temperature ranges from 55° to 60°. These may either be placed on the border or in boxes. In either case they should be slightly covered with leaf-mould, or soil containing a considerable quantity of leaf-mould; or they may be put upon a mild hot-bed in a forcing-house or pit. If the tubers are dry, and in good condition, they may be placed in a forcing-house straight away, but, should they be damp and somewhat unpromising, it will be better to get them into a perfectly healthy state before commencing to force them. Take care not to give them too much water, remembering that the moisture-laden condition of the atmosphere in the forcing-house, together with

frequent syringings, will be sufficient to induce the tubers to start into growth. As soon as shoots are seen to be proceeding from the tubers, it will be necessary to expose them as much as possible to the light, in order that the growths may be sturdy, and, therefore, provide good cuttings. These should be removed from the tubers when about 4 inches in length by means of a sharp knife. The cuttings should be placed singly into thumb pots, and the pots may be planted in a hot-bed. As soon as the cuttings have made roots they should be gradually inured to more air and a cooler atmosphere. Repot them into larger pots as this becomes necessary, and do everything possible to keep the growth sturdy and strong.

Pentstemon.—To perpetuate named varieties of Pentstemon, or a distinct and effective variety for bedding, it is usual to propagate them by means of cuttings. At the same time, if seed of a good strain is now sown, excellent plants may be obtained for putting out in the spring. The plants may, perhaps, be in flower a little later than those which are raised from cuttings, but nevertheless they may be expected to produce a wealth of flower, which will last until severe frosts occur. Such plants may contain amongst them certain varieties worth saving for another season. Sow the seeds in boxes or pits provided with good drainage and filled with a light, sandy compost, just covering the seeds with some of the finest of the soil; afterwards press the surface firmly and evenly. Apply water through a fine rose-can, and place the pots in a house where the atmospheric temperature is about 60°. Prick out the seedlings into boxes as soon as they can be handled, using a moderately rich, open compost, and place the little plants at a distance of 2 inches apart. When they have recovered from the check of transplanting, remove them to a cool house, and later to an unheated frame.

East Lothian Stocks.—The East Lothian Stock is by far the best strain for bedding purposes. There are many self colours among the flowers, and these come true from seed. Under good culture the plants produce large spikes of flowers, and usually there is a high percentage of double flowers. Seed should be sown at the present time, in much the same manner as Pentstemons, and the plants should be treated similarly afterwards.

PLANTS UNDER GLASS.

By JOHN DONCHIE, Gardener to JOSEPH PICKERSGILL, Esq., Barton Hill, Westwood, Yorkshire.

Propagation by notching or ringing.—Plants, such as *Codiaeums* (*Crotons*) and *Cordylines* (*Draecenas*), that have become leggy through losing their bottom leaves may be made into good specimens again by notching or ringing. At the part of the stem where it is desired to form the new root-system, make a notch on either side with a sharp knife, and remove a portion of the bark. Bind this spot with damp moss mixed with coarse silver sand and Coconut fibre. If the plant has a large head, it is advisable to secure it to a stake, otherwise, when it is heavy with moisture or during syringing, it may break at the spot where the cuts were made. In the case of choice specimens, it is best to employ pots 6 or 7 inches in diameter, which have been split in halves, and then to fill these with the mixture of moss, sand, and Coconut fibre. The two halves must be securely fastened together and attached to the stem of the plant. The advantage of using pots is that they can be filled with suitable potting compost, in which the roots will ramify. When the new root-system is sufficient to warrant the stem being severed, it should be cut through gradually so as not to cause too great a check. The plant should then be placed in a moist atmosphere, in a house in which a temperature of about 75° or 80° is maintained. Syringe the plants frequently and shade them during bright sunshine.

Bougainvillea.—This plant is very suitable for furnishing the back wall, or the roof of a stove of intermediate temperature. If it is allowed ample space for the proper development of its drooping flowering sprays, it affords a beautiful display of bloom. The plant does not require a very long season of rest, and it is not too early to shorten the shoots, cutting them back to where the wood is well-ripened. When the plants have been trimmed as advised, place them in the intermediate stove and keep the atmosphere moist. A

little later, when the new shoots are appearing, remove carefully most of the old soil about the roots and repot the plants, using rather smaller receptacles and a compost similar to that recommended for *Stephanotis* (see p. 71). After potting, shade the plants lightly during the hottest part of the day.

Cyclamen.—These plants may be assisted with a light dressing of some chemical fertiliser or liquid farmyard manure in a diluted form. Seedlings should be taken from the seed pans as soon as ready and potted into thumb pots. When the weather is bright a gentle spraying overhead a few times during the day will assist in promoting a healthy growth. For some time to come, plants may be accommodated on a shelf near to the roof; maintain a temperature of 50° to 55° and keep the atmosphere moist.

The forcing-house.—Continue to introduce into gentle heat, at intervals of a week or ten days, fresh batches of plants for flowering. Lilacs, *Staphylea*, *Guelder Roses*, and the shrubby *Spiræas*, *confusa* and *Van Houttei*, are suitable subjects for forcing at this season. They should be syringed regularly, and the atmosphere of the house kept constantly charged with moisture. *Spiræas* must never be allowed to become dry at the roots from the time they commence to grow. These with Tulips, Narcissi, and Lily-of-the-Valley provide a successful display of blooms.

The Fernery.—The present is a suitable time for potting up the general stock of Ferns, as it is not advisable to disturb the roots after the plants have commenced to grow. The compost used for potting should consist of rough, fibrous loam and peat, with charcoal and broken crocks in quantity, sufficient to keep the soil porous. Ferns should never be over-potted. Specimen plants may be kept healthy and in a thriving condition in pots of a moderate size with the aid of liquid manure during their growing season. When in small pots, the plants are more suitable for decorative purposes. Ferns are usually propagated from spores, but species with creeping stems are easily increased by division of the rhizomes. *Adiantums* may be increased by division of the crowns.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Asparagus. The Asparagus beds that were top-dressed with farmyard manure in winter should be lightly forked over, and the surface covered with fine soil from the alleys. The quantity of soil applied must depend upon the depth of the crowns from the surface of the bed, but when finished the covering may be 6 inches deep; the lighter the soil used for covering, the better. Where the soil is of a heavy and retentive nature it is desirable to dig a quantity of manure or old fermenting material into the alleys each year, and so prepare the soil that will be used as a top-dressing in the following year. In cases where new beds are to be formed, the ground should, if this work has not been done already, be trenched and heavily manured. If the subsoil is of a very heavy nature it should be simply dug up and left in the bottom of the trench, mixing it with dung, old leaves, or any garden refuse likely to make it lighter. A good dressing of river sand may also be applied with advantage. When the soil retains too much moisture, Asparagus is not satisfactory, and the produce rarely compares with that grown in a more porous medium. In proceeding to plant the beds, the alleys should first be marked out at the required distances, and a stout stick should be driven in the corner of each bed, from which the distance for each line of plants may be measured. In these gardens we plant three rows in beds 5 feet wide, one row in the middle and the others at distances of 1 foot from either edge. A distance of 18 inches is allowed between the plants in the row, and the alleys are made 3 feet in width. Planting should be deferred until growth has commenced, for what is gained by moving the plants whilst in a dormant state is more than counterbalanced by the cold condition of the soil. When the plants have been placed in position and the roots spread out evenly, the surface of the beds should be covered to a depth of 2 inches with the finest soil procurable from the alley.

Parsnips.—The ground intended for this crop,

having been trenched in the autumn, should be forked over and allowed to remain rough until it is dry enough to crumble under the feet. The seed should be sown as early in February as the weather will permit, but it must not be sown until the ground is in a fit condition. For general purposes the seed may be sown in drills drawn at 18 inches apart and 2 inches deep, but if extra fine roots are desired, holes should be made with a crowbar at distances of 2 feet apart. Each hole should be filled with finely-sifted soil of a sandy nature and made moderately firm. Three or four seeds may be placed in each hole and covered with the same kind of compost. As soon as the plants are large enough they may be thinned, leaving the best plant nearest the centre of the hole.

Shallots, Garlic, &c.—The bulbs should be planted early in this month, choosing for them a light sandy border. Plant them in rows 1 foot apart and leave 6 inches between the bulbs. Press each one tightly into the soil, leaving the crown level with the surface of the bed. Potatoes and Garlic may be treated in the same way, but these may be allowed a little more space between the rows.

Potatoes.—When this vegetable is cultivated in pits the plants must be given plenty of fresh air whenever this is possible. If further plantings have to be made, the soil must not be less than 9 inches deep; this will lessen the need for frequent waterings and top-dressings. Many gardeners can grow a few Potatoes in pots who cannot devote a pit to them. Three sets are sufficient for a 10-inch pot. The pot should be liberally crocked and then half-filled with loam and leaf-mould in equal quantities. The sets should be planted, leaving the remainder of the space for earthing up the plants as growth advances. Do not subject them to excessive heat or over-water them during the early stages of growth.

Parsley.—If it appears likely that the supply of Parsley will be inadequate, a sowing may be made in boxes and placed in a gentle heat. Such a sowing will provide seedlings for planting out early in April.

Radishes.—Make frequent small sowings of early Turnip-rooted Radishes. Radishes are seldom good unless they are grown in rich soil and provided with liberal supplies of water.

THE APIARY.

By CHILDS.

Bees kept near the roadside. In villages and suburbs of towns the hives have often to be placed near the road. To have bees close to a roadside is often the cause of much trouble to the beekeeper, because bees do not like quick-moving bodies near their hives, and they have a great objection to horses. If the hives are not at least 75 to 100 feet from the roadway something must be placed in front of them. This can be best achieved by planting a hedge that will grow quickly to a height of 11 feet or by erecting a trellis of this height, and covering it with quick-growing climbers.

Sometimes, when taking off sections that have been placed over shallow frames, or the brood chamber where no queen excluder has been used, one of the frames is lifted with the crate, and when clear of the hive it falls. This causes a commotion amongst the bees, and those near, including neighbours, are liable to be stung. Before any such trouble happens it is advisable to present the neighbour with a section or a small jar of honey, so that they remain friendly to the bees and beekeeper.

Stings.—After a bee has inserted its sting it tries to withdraw the weapon, and in doing so often wrenches the sting from its body, leaving it behind, together with the poison sac. To attempt to extract it with the thumb and finger will only press more poison into the wound. Generally it will be found best to use a knife in placing it under the poison sac. If a knife be not handy, then the finger or thumbnail may be used in a similar manner. Rubbing the wound will only increase the pain. If, when the sting has been removed, great pain is experienced, take some very hot water in which bicarbonate of soda has been dissolved, and if the painful part can be put in solution, so much the better; but if it cannot, use a sponge to squeeze the mixture on the wound, but do not rub it with the sponge.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 7—
Ann. meet. of Nat. Chrys. Soc. at Carr's Restaurant, Strand. Surveyors' Inst. meet.

TUESDAY, FEBRUARY 8—
Roy. Hort. Soc. Coms. meet. at 12 noon. Ann. Meet of Fellows at 3 p.m. British Gard. Assoc. Ex. Council meet.

THURSDAY, FEBRUARY 10—
London Branch of B.G.A. meet.

FRIDAY, FEBRUARY 11—
Roy. Gard. Orphan Fund Ann. Meet. and Election of Orphans at Simpson's Restaurant, Strand.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—39° 1'.

ACTUAL TEMPERATURES.—

LONDON.—Wednesday, February 2 (6 P.M.): Max. 42°; Min. 38°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 3 (10 A.M.): Bar. 29.3; Temp. 43°, Weather—Very dull.

PROVINCES.—Wednesday, February 2: Max. 42° Cornwall and S. Ireland, Min. 34° Hull.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous and Border Plants, Hardy Bulbs, Lilliums, Tuberoses, &c., at 12; Roses, Fruit Trees, and Azaleas, at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

TUESDAY TO FRIDAY—
Unreserved sale of the fourth portion of the Nursery at St. John's Nurseries, Worcester, by order of the Receiver for the Debenture Holders re R. Smith & Co., Ltd., by Protheroe & Morris, at 11.

WEDNESDAY—
Perennials, Border Plants and Bulbs, at 12; also Trade Sale of Miscellaneous Bulbs and Roots; Roses and Fruit Trees at 1.30; 1,480 cases Japanese Lilliums, at 2; Palms, Azaleas, Ferns, &c., at 5, at Protheroe & Morris' Rooms.

FRIDAY—
Cypripediums and other established Orchids, at 67 & 68, Cheapside, by Protheroe & Morris, at 12.45.

An Appeal to the London County Council. The London County Council will proceed on Tuesday next to the election of the chief officer of the London parks. The work of selecting the more suitable of the candidates, entrusted in

the first place to the Parks Committee and subsequently to the General Purposes Committee of the Council is, we believe, practically complete. As the result of the preliminary elimination, about a dozen candidates have been selected. Report has it that the list of selected candidates contains the names of men experienced in park management, and also those of others from professions altogether unconnected with any branch of practical horticulture. The appeal which we address to the members of the Council with whom the election rests is that they shall appoint to the post of chief officer a man fitted by training and experience for carrying out the duties of the post. These duties must include a general supervision of the parks under the control of the Council, the initiation of improvements which shall make these parks more worthy of London, and an intelligent

criticism of schemes put forward by the park superintendents. We submit that it is not reasonable to expect to find men of requisite experience except among such as have had training in park management. It may be urged that what is wanted primarily for the post is 'power of organisation. On this we would make the following remarks. In the first place, power of organisation, though essential, is not the only necessary qualification, for, without technical knowledge, the responsible head would be unable to issue orders or make suggestions for the better design and management of the parks. Secondly, the Council itself, in advertising the appointment, recognised the desirability of expert knowledge in landscape gardening, horticulture, and the allied arts of gardening. Thirdly, we are not aware that the power of organisation is necessarily inherent in the members of any one profession, nor that it is confined to one profession. The men who are responsible for the great parks of our provincial cities have, as part of their routine work, the control and direction of large bodies of men, and the notorious success which they have achieved, is a proof that they possess organising capacity as well as technical skill. In Edinburgh, Glasgow, Leeds and other large towns the chief officers are all trained gardeners.

We appeal with confidence to the Council to appoint a man trained in park management, or, failing such, one versed in the art of landscape gardening or in general horticulture. This appeal we make in no man's interest: we make it on behalf of horticulture, of the good sense of the Council, and of the people of London.

Prevention of Cruelty in the Destruction of Birds and Vermin.

The attention of the Board of Agriculture having been drawn to the unnecessary cruelty to animals which arises through improper and indiscriminate use of traps and snares, has published a leaflet (No. 228) setting forth the provisions of existing Acts of Parliament on the subject.

The leaflet draws attention to the Ground Game Act, 1880, the effect of the provisions of which Act is to limit the right of occupiers to kill hares and rabbits to the occupier himself and to persons authorised, *in writing*, by the occupier.

The Board points out that farmers and others, by using their rights judiciously, can aid materially in reducing the cruelty arising from negligence by insisting that the persons they authorise to set traps for hares and rabbits shall visit the traps periodically. Another provision of the Game Act (Section VI.) makes it a punishable offence to set spring traps in the open for the purpose of killing ground game. Such traps, if employed at all, must be set in the rabbit hole. Moreover, the Scotch courts have decided that the term rabbit-hole does not include the run but only "that part of the burrow which is inside the ground and covered by the roof."

The Board expresses the opinion that the spring trap should be abandoned altogether as a means of catching ground game. It recommends in its place an adaptation of the ordinary "wire" trap or snare.

Leaflet No. 228 draws attention to the fact

—which we recently, in the course of a review, had occasion to mention—that the use of pole-traps is prohibited by the Wild Birds Protection Act, 1904, Section I.

The Poisoned Grain Act of 1863 prohibits the laying of poisoned grain or seed on any ground or exposed place—except in the case of sowing dressed grain or seed. Similarly it is an offence under the Poisoned Flesh Prohibition Act, 1864, to lay poisoned flesh on land, but this does not debar the occupier of a dwelling-house or other building from laying it in house, building, enclosed garden or in drains for the destruction of rats, mice, and other small vermin. We have pleasure in giving publicity to the leaflet, for we feel sure that all right-thinking people will assist in the enforcement of these Acts in every way possible.

We would only add that, in addition to instruction in what may not be done, we look to the Board for assistance in the devising of measures for the extermination of vermin—rats in particular—which cause such heavy losses to the farmer. We would suggest that the Board should issue a leaflet dealing with this subject and also with the no less important subject, from the point of view of the health of the community, of the extermination of flies. These latter pests are the bearers of the germs of various diseases, and it would be well if this fact were made more widely known.

OUR SUPPLEMENTARY ILLUSTRATION.—In regard to the subject of our Supplementary Illustration, Mr. C. T. DREYER writes us as follows: "By permission of Mr. T. SIMPSON, the owner of the plant, I send you a photograph of a magnificent specimen of *Platynerium alcorni*. The plant has been in Mr. SIMPSON'S possession for fully 30 years. It is 18 years since it was hung up in its present position, being suspended by a single wire from the roof and mulched occasionally between the barren fronds with suitable compost. It is well soaked overhead with water about once a week. The mass is fully 5 feet through and 4 feet high, and has developed by virtue of the faculty possessed by *Platynerium* of developing buds at their root-tips when these penetrate through the mass of leafy debris in which they grow. The broad fronds are the barren ones, and are addressed to the mass, whilst the branched or staghorn ones are fertile, bearing the sporangia or spore-pods in thick, evenly distributed sheets towards the tips and not in defined heaps, dots, lines, or specially formed receptacles as is the case with most species of Fern."

FLOWERS IN SEASON.—Specimens of several hardy trees and shrubs, some in flower and others in berry, are sent by Messrs. ROBERT VEITCH & SON, Exeter. *Prunus* (*Amygdalus*) *Davidiana* is densely furnished with white blossoms, very like those of the Plum. The type bears white flowers, but there is a pink form; the flowers of the latter were still in the bud stage. A full page illustration of *Prunus Davidiana* is given in our issue for April 23, 1892, p. 529. *Lonicera Standishii* is sometimes confounded with *L. fragrantissima*, probably because it was first sent out by the Royal Horticultural Society with that species, both having been sent home from China by ROBERT FORTUNE. *L. Standishii* bears fragrant, creamy-white flowers in pairs just as the leaves are unfolding at this season. The Witch Hazels were represented by *Hamamelis arborea* and the paler, almost lemon-coloured *H. japonica* var. *Zuccariniana*. Amongst several

Daphnes was a large, dark-flowered form of *D. Mezereum*. The male form of *Garrya elliptica* has dark grey flowers forming a catkin-like inflorescence. Two valuable winter-blooming Heaths are seen in *Erica mediterranea hybrida* and *E. codonoides*. The former species has pink flowers borne in a dense tuft, whilst in the latter they are white, growing on plume-like branches. The white form of *E. carnea* was also sent. *Skimmia Fortunei* and *Cotoneaster angustifolia* are two pretty-berried subjects, with dark red and orange-yellow fruits respectively.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held at the Institution on Monday, February 7, when the adjourned discussion on Mr. DAVIDGE's paper on "Town Planning Systems," and Mr. JOHN WILLMOTT's paper on "The Housing, Town Planning, &c., Act, 1909," will be continued. Mr. DICKSON's paper on "The Poor Laws," previously announced to be read at this meeting, has been consequently postponed. The ordinary general meeting on Monday, February 21, will be held at five o'clock, when Mr. R. M. D. SAUNDERS will read a paper on "Land Banks and Small Holdings."

SOUTH-EASTERN AGRICULTURAL COLLEGE.

—At a meeting of the Governors of the South-Eastern Agricultural College, Wye, held at Caxton House, Westminster, on January 31, the Right Hon. Lord ASHCOT (chairman), presiding, it was unanimously resolved that the college buildings should be considerably extended. At the present time, owing to the number of students, the existing buildings are inadequate; the proposed extension, which will be ready for the next session in October, will provide extra rooms for in-college students, and will at the same time largely increase the teaching and research accommodation.

"FRENCH" GARDENING EXHIBITION.—An exhibition of "French" gardening will be held at the Royal Botanic Society's Gardens at Regent's Park in July. Active preparations are now in progress for exhibiting and demonstrating every aspect of the close and scientific cultivation of the soil. Actual "French" gardens will be shown in operation. The ways in which the soil is fertilised and impoverishment prevented under this system will be a subject of demonstration. There will be frequent lectures on the theory and practice of intensive culture, and exhibits of the straw-mats and forcing frames—"cloches"—of the market gardeners of Paris. It is hoped that the proprietors of "French" gardens already established in England will contribute exhibits. Prizes will be offered for the best specimens of their produce.

FRUIT CONGRESS AT HEXHAM.—Details of the congress and fruit show, which we have already announced is to take place at Hexham on Thursday, Friday, and Saturday, October 20, 21, and 22, have been received. Exhibitors, other than traders, will be restricted to the four northern counties, the main object of the congress being to encourage fruit-growing in Cumberland, Westmoreland, Durham, and Northumberland. The Royal Horticultural Society will send three official delegates, who will be empowered to grant medals and certificates. A guarantee fund has been formed, but up to the present it is not decided whether prizes will be offered, although it is hoped there will be classes for (1) hardy fruit, (2) bottled fruit, (3) fruit grown under glass. The congress sub-committee has drawn up a programme, which includes the following subjects for debate:—"The Best Hardy Fruits for the North of England," "Enemies to Fruit

Culture," "Intensive Culture, suitable to the North of England," "Poultry and Bees," "Co-operation and Grading," "Fruit Storage and Bottling of Fruit." There will also be demonstrations of spraying and of frost-fighting by smudge fires. It is hoped that the Town Hall, as well as the Exchange, will be available for the purposes of the show. Further particulars can be obtained from the secretary, Rev. J. BERNARD HALL, Dalston, Cumberland.

PUBLICATIONS RECEIVED.—United States Department of Agriculture, Bureau of Entomology. Bulletins: Some Insects Injurious to Truck Crops (The Lima-Bean Pod-Borer, The Yellow-Necked Flea-Beetle), by F. H. Chittenden; Catalogue of recently-described Coccidea, by J. G. Sanders; Insect Depredations in North American Forests, by A. D. Hopkins; Report of the Entomologist for 1909, by L. O. Howard.—**Bureau of Plant Industry.** Seeds and Plants Imported (during the period from January 1 to March 31, 1909); Seeds and Plants Imported (during the period from April 1 to June 30, 1909); Application of some of the Principles of Heredity to Plant Breeding, by W. J. Spillman; The Limitation of the Satsuma Orange to Trifoliate-Orange Stock, by Walter T. Swingle. (Washington: Government Printing Office.)—**Central Experimental Farm, Ottawa.** Strawberry Culture, by W. T. Macoun. (Ottawa: Fisher.)—**Stapeliaen and Kleinien** (Stapelia and Kleinia), by Alwin Berger. (Stuttgart: Eugen Ulmer.) Price 6s. 6d.—**Cassell's Dictionary of Gardening**, by Walter P. Wright. (London: Cassell & Co., Ltd.) Pt. I. Price 7d. net.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE PRUNING OF YOUNG VINES (see pp. 51, 52).—It is quite an easy matter for an expert Grape grower to strike his vines in January, and to take five or six good-sized bunches of Grapes from them the following year without in any way injuring the permanent fruiting capacity of the plants. Mr. Molyneux says that the "error most commonly committed in pruning vines consists in allowing too great a length of leader during the first four years," adding, "I have many times seen as much as 6 feet of leader left the second year of pruning." Mr. Molyneux's pruning commences in cutting back a pot vine to two eyes before planting, and pruning the first year's growth of a 14-foot cane to within 2 feet of the ground-line, after the vines have shed their foliage. The progress thus made towards furnishing a house with fruiting vines with two-year-old plants is to reach only a few inches above the first wire of the trellis at the beginning of the third year from the time the vines were rooted. In January, 1883 (while presiding over Longford Castle Gardens), I struck a number of vines in some 12 or 14 varieties, and in the following April and May planted the best plants to fill a range of new vineries. The vines were set 4 feet apart in borders about 3½ feet wide. A vine underneath each rafter was for permanent culture, and, between these, super-numeraries were planted at 2 feet apart for yielding a crop of Grapes the following year. When the young vines had extended their growth about 2 feet up the rafters (that was about 4 feet from the border), the points of each vine were pinched out, and a few days later the lateral growth starting from the top joint of the individual vines was removed. This caused the bud at the base of the leaf of the shoot pinched, which, in the ordinary way, would remain dormant until the following year, to push into growth after a lapse of 10 or 12 days, the buds below, as well as the main stem, swelling and plumping up well during the interval. The operation was repeated after the leading shoot had made a fresh growth of 2 feet, and so on until the middle or end of September, by which time the main growth had reached the top of the rafters. The shoots were stopped at the first and second joints and kept pinched hard back at the latter

point from the beginning. The supernumerary vines were treated in the same manner until they had made a growth of 7 or 8 feet from the first wire, at which point the lateral shoot was allowed to grow a few inches, and was then stopped; the sub-laterals proceeding therefrom were kept persistently stopped, the object being to concentrate the strength of the vines in the development of strong rods and large, well-matured buds for fruiting in the following year—the first year after being struck from eyes! The later growths allowed to push from the top of each vine were left in order to prevent the terminal buds, as well as those at the bases of the leaves on either side of the individual rods, from pushing into growth before the following year. The growths proceeding from the vines between the ground-line and the trellis I pinched, after allowing them to make two or three joints, and, at pruning time, they were pruned back to one eye. Vines thus treated are always a trifle thicker below the first wire than above it. Where the laterals are rubbed off the vines, as is usually done below the trellis, the main stems are, at that point, much less in circumference in consequence thereof. The permanent vines that were strong and well ripened were pruned to within 6 or 7 feet from the bottom of the rafter after they had shed their leaves, weak rods being cut to within 5 or 4 feet of that point, and the side shoots to within 1 inch of the main stem, the supernumeraries being treated in a like manner. I should have remarked that, during the first year's growth, when laterals began to show, the strongest on either side were selected at about 15 inches from one another on each side right and left of the main stem, the young developing shoots retained on one side of the rod being placed anglewise to those on the other. This afforded more room for the development of growth than would be the case were the shoots left opposite to each other. The first year after planting the supernumerary canes were allowed to ripen from four to five bunches each. The varieties included Black Hamburgh, Muscat of Alexandria, Madresfield Court, Gros Colman, and Mrs. Pearson. The following year (the second year after planting) I allowed the permanent vines to ripen a few bunches each. Three bunches of Buckland Sweetwater weighed 12½ lbs., and these won 1st prizes at Salisbury, Exeter, and the Crystal Palace, and, in addition, were awarded a medal by the Fruit Committee of the Royal Horticultural Society, within eight or ten days from the time they were cut. Gros Guillaume yielded three bunches, which together turned the scale at 30 lbs. Gros Colman produced three bunches, which weighed 13½ lbs. The supernumerary vines yielded such satisfactory crops the second year that I decided not to uproot them, as I had intended doing when I planted them; but I re-arranged the vines so as to allow a space of 3 feet between them instead of 4 feet, as originally decided upon, cutting out a supernumerary and permanent vine here and there to admit of this arrangement being carried out. The vines continued to yield most satisfactory crops of Grapes every year up to the autumn of 1896, and probably they do so still. I do not need to say anything more about the treatment bestowed upon the vines, inasmuch as it was about the same as that practised by all good Grape growers. I mention the above facts in order to show amateurs and young Grape growers that it is not by any means necessary to wait three or four years to obtain a fair crop of Grapes. H. W. Ward.

—There is sure to be some difference of opinion in regard to this subject. It is difficult to lay down any hard-and-fast rule as to the length of young wood it is best to leave on the leading growths of young vines. This must depend, to a great extent, on the strength of the plants. To leave 6 feet of growth on vines which were wanting in strength would tend to make them still weaker. On the contrary, I fail to see what harm would result from leaving 6 feet of growth on vines which were full of vigour, provided the plants were not unduly hastened into growth by artificial means. The chief point to study at pruning time is the need to get a balance of growth with the root-power. To tax young vines in excess of their rooting capacity would be to court failure. I have seen numerous cases where plants have been ruined in this manner, and it is rarely they recover from a bad start. I would like to emphasise one remark in Mr. Molyneux's

note in respect to planting vines too closely together. The only advantage to be gained by this system is that of covering the trellis in the least possible time; but this advantage is only temporary. It is known that vines planted far enough apart to admit of two or more rods being trained from one plant, generally last for a much longer period in a free-bearing condition than vines trained on the single-rod system. *E. Harriss, Frogmore.*

In respect to Mr. Taylor's note (see p. 69), is it fair to compare the growth of vines in pots with those planted out in borders for the purpose of forming permanent vines? In the one case the roots are severely restricted, and are highly fed to produce canes that will fruit freely the following year, then be thrown aside. Were permanent vines treated in a similar manner, what lamentable failures they would be after a year or two! Is it better to allow young vines moderate root room and top growth, that they may secure a good start for many years of fruiting, or is it better to leave on them after their first year's pruning so much wood that, if every lateral fruited, the vines would be crippled, provided every eye or bud pushed into growth? In many cases when long growths are left on young vines, after pruning, the back buds refuse to break, and thus leave bare lengths on the main rods, such as never present themselves when more severe pruning is practised. Many young permanent vines have been ruined in this way, because the growers have been too anxious to secure heavy crops the second year after planting. Mr. Taylor will doubtless reply that such barren lengths of rod would not result were the young leaders pinched after making a certain growth. If pinching be good practice, however, why is it not generally adopted, for, in the majority of cases, leading growths are allowed to extend to any length without being stopped. Mr. A. F. Barron, in his book on the vine, remarks, with respect to young vines: "Once fairly started, they are all the better for the first summer if allowed to grow, and ramble pretty freely with as little checking and stopping as possible. The more leaves and shoots developed, the more roots produced, and the stronger the foundations laid for the future." There is nothing here about pinching the leaders. Also, with reference to leaving a long rod on the vine after pruning, that is the "road to ruin." But so much depends on the merits of stopping young vine leaders, as advocated by Mr. Taylor. *A. D.*

PEELING LOOSE BARK FROM VINES.—It is a pleasure to see Mr. Goodacre recommending (see p. 71) the non-removal of loose bark, and the plastering of the rods with clay, cow manure, and sulphur. I have seen vines so peeled and scraped that they had the appearance of walking-sticks! It is strange that such a practice should be common. *F. B.*

THE VALUE OF LIFTING PEACH TREES.—A successful fruit-grower recently informed me that he lifted the roots of his Peach trees every year. I have frequently lifted Peach trees, but only when I could procure suitable soil to add to the roots. It is surprising what good can be done in this way, as well as occasionally laying bare the surface roots, and covering them with turfy loam. Twenty-nine years ago, in consequence of the demolition of the glasshouses in which they were growing, I moved 10 Peach trees in the last week in July that were said to be more than 30 years old. Having a bare space on a south wall, I covered the surface of the ground with a layer 4 inches deep of the materials from a spent hot-bed, which consisted mostly of leaves. On this I laid the roots, and covered them with similar material which had been passed through an inch sieve. After watering the roots, they were covered 4 inches deep with similar materials in a rough condition. When the main branches had been secured to the wall, I placed lights from the old houses in front of the wall, leaving spaces between them, here and there, for watering and syringing the trees, which was done often to prevent the leaves flagging. The weather being hot at the time, the lights were covered with mats during bright sunshine. By the last week in December the new houses were ready for the planting of the trees. After the lights were moved and the branches released, the trees were pulled up, and, to my delight, the

old roots were furnished with numerous white roots, to which some of the particles of leaf-mould clung. When the roots were laid out in the new border, they were covered with the sifted material as before, and watered with tepid water. The soil was placed lightly over them to avoid injuring the tender roots, but the other portion of the border was made moderately firm. The trees flowered well the next season, and set such an abundance of fruits, the crop had to be thinned. I got more fruit from those trees the first year after replanting than I could have obtained from young trees in half-a-dozen years. All the trees bore good crops afterwards for 20 years, but most of them are now dead. *W. E. R.*

COTTAGE GARDEN AT HITCHIN.—Having been for nearly 10 years a reader of the *Gardeners' Chronicle*, I have often been struck by the beautiful reproductions of gardens shown from time to time in your journal. As these, however, are usually taken from large gardens, I thought it might interest some readers to see how a small garden could be made beautiful. The enclosed photograph (fig. 48) of my garden represents a small plot, 75 feet in length by 20 feet in

CHRYSANTHEMUM SPORTS—HOW TO INDUCE THEM.—Under this heading the following abstract of an article by G. T. Grignan in *Revue Horticole*, May 1, 1909, p. 196, is cited in the recently-issued *Journal of the Royal Horticultural Society*. (See p. 297.)

"It is suggested that variation is induced by excessive propagating; cuttings are taken repeatedly as soon as they are long enough, and it is the latter cuttings which are assumed to be less robust and to lose to some extent their equilibrium, the result being, especially if the major part of the plant be removed, a greater tendency to produce sports. Under such conditions the writer cites the production of Madame Constant Walker; while Mrs. Henry Robinson gives each year yellow sports. Souvenir de Madame Maucere also produced a yellow sport the first year it was put on the market. Cultivators on a large scale have thus a greater chance proportionately than small ones."

That this opens a very interesting question there can be no doubt, though the only part that I fully agree with is the last phrase of the quotation. The gist of the whole matter is the statement that excessive and continuous propagation is an important factor in the production of sports, but this, I imagine, most Chrysanthemum specialists would regard as "not proven." Were it otherwise, the most popular sorts should have this sporting tendency most highly developed, but, as far as I know, there is no



FIG. 48.—VIEW IN A HERTFORDSHIRE COTTAGE GARDEN.

width, such as is usually attached to a cottage. The fences on both sides are practically hidden during summer by herbaceous subjects, which are such useful plants for making a small garden look beautiful. Rambler Roses form a shady arbour in the centre, and the winding gravel path leading to the top of the garden gives an impression of a much larger area than the garden really contains. *H. Stenison, 23, Lancaster Road, Hitchin.*

NATIONAL DAHLIA SOCIETY.—The National Dahlia Society has arranged to hold a "Conference on Dahlias," at Carr's Restaurant, 264, Strand, on Friday, March 4, at 6 p.m. The following papers will be read, and discussion invited. "Dahlias for Garden Decoration," by Mr. George Gordon, V.M.H.; "Growing Dahlias for Exhibition," by Mr. J. Stredwick; "Methods of Exhibiting Dahlias," by Mr. J. B. Riding. All members and their friends are invited to attend. In future all subscriptions should be made payable to "Treasurer N. D. S.," and forwarded to me at the address given, which is the only official address of the society. *E. F. Hawes, Hon. Sec., Royal Botanic Gardens, Regent's Park, N.W.*

evidence of this, and many varieties grown by their thousands each year have never yet given a sport. If intensive, excessive or continuous propagation encourages or induces sporting, then the majority of good novelties should yield sports in the early years of their cultivation, when, as a rule, they are propagated most severely, not merely by cuttings taken as soon as they are long enough, but very often, as "single eyes" and, subsequently, either as "eyes" or cuttings. Just what degree of propagation is likely to happen depends upon the supply and demand, though all the most popular of market sorts are propagated enormously each year. Take Elaine, for example, a variety that during its half century, or thereabouts, of cultivation must have been propagated by the million, but it has not, so far as I remember, given a definite sport, though it has attempted to do so more than once. The rich yellow late variety W. H. Lincoln I propagated by thousands in the early years of its history, first from "eyes" and later from every available cutting, but I never saw a sport from this variety. On the contrary, the "yellow" Triomphante was so uncertain by reason of its sportiveness that I gave up growing it a dozen

years or more ago, while the propagation in its case was probably 200 per cent. less than with W. H. Lincoln. Mrs. Henry Robinson cited in the abstract note as giving "yellow sports each year" is on all fours with the above, while this changeable or unfixed condition noted in certain types or varieties of *Chrysanthemums* has its parallel in the *Carnation*, *Sweet Pea*, and *Primula sinensis*, but to none of these could the term "excessive propagation" be reasonably applied. The sportive or unfixed condition appears in certain types of the *Chrysanthemum* to be innate, and not infrequently the break occurs in diverse places spontaneously; it may be a year or two after introduction, or, as in the case of the old incurved *Duchess of Teck*, after 25 years of cultivation, and when its propagation was declining in all directions. A peculiarly interesting point relative to the sporting of the last-named variety was the fact that the change affected a very large proportion of the stock, and not, as is usual, an individual plant or a branch. In this district alone the sporting occurred in several places, the sports being identical. The *Marie Masse* section of the early *Chrysanthemums* is notorious for its continued sporting, and each year, from the so-called "*Crimson Masse*," there appear shades of pink, gold and crimson in mixture, and deep claret shades, but the latter, while repeated from year to year, are not reproduced in the selected plants or in their progeny, the flower-heads usually being of mixed colour and of a degenerate type. Mme. C. Desgranges and *Caprice du Printemps* are others that show considerable sportive tendencies, and while the former variety has apparently become stable, the latter, after many years of ordinary cultivation, continues to furnish occasional surprises. *Caprice du Printemps*, however, gave no sport in its early days, while the former had been known to me at least 15 years before the first of its yellow sports *G. Wermig* was known. The yellow *Masse* sport *Horace Martin* was propagated in enormous quantities in the first year or two—as many as 60,000 plants being worked up in one instance—but I never heard of its giving a break as the result of raising this huge stock. It is with these facts in mind that one cannot accept the theory that excessive or continuous propagation is the dominant influence in inducing sporting in these plants. *E. H. Jenkins.*

GESNERAS AS WINTER-FLOWERING PLANTS.

—We have for many years had *Gesneras* in flower from the middle of December until well into the New Year. At the time of writing (January 29) we have a number of good plants with long spikes of flowers in an intermediate house, intermixed with *Begonias* of the *Gloire de Lorraine* type, where they form a very showy group. As a pot plant for indoor decoration, the *Gesnera* forms a pleasing change from other winter-flowering subjects. Nevertheless, some varieties have a tendency to shed their flowers almost as soon as they expand during dull weather. I have, therefore, discarded several. I now grow only two varieties, a cream-coloured seedling, with spikes fully 18 inches long, and *G. cinnabarina*, or, as it is sometimes called, *Nægelia cinnabarina*. The flowers of both these open as freely in December as in the summer months, and the individual blooms are retained almost till the full length of the spike is in flower. When the plants have finished flowering, they are placed in a light position under the stage. They are watered until the foliage shows signs of withering, after which moisture is gradually withheld until the stems have died down, when the plants are turned out of their pots and stored in sand. In this condition they remain in a dry, warm shed till the second week in July, when they are repotted, three being placed in a 6-inch pot, or one or two in a 4½-inch or 5-inch pot. The compost consists of two parts loam, one part peat, with a little dry cow dung, leaf-soil, and sand. If the soil is moist, no water is needed until signs of growth are apparent, beyond syringing overhead twice each day. At first they are placed in a vinery, but when growth is about an inch or so in length, they are transferred to a pit, where they receive more light. When the pots become filled with roots, weak liquid manure is afforded the plants. *F. Chipstone, Dingley Gardens, Market Harborough.*

THE WEST INDIES.

HYPERICUM JAPONICUM.—This species of St. John's Wort succeeds well in the open at Government House Grounds, Trinidad, where it has been made use of for more than 20 years as a flower-garden subject. It is of suitable size for such purposes and flowers freely. It develops into a woody plant 2 to 3 feet high, with plenty of side branches. The flowers are a rich yellow and the leaves are small.

THREE TRINIDAD TERRESTRIAL ORCHIDS.—Among several Orchids that grow in the Natural Savannas, the following are prominent species:—1. *Cyrtopodium cristatum*, Griseb.; 2. *Cyrtopodium cristatum*, Lindl.; 3. *Epistephium parviflorum*, Lindl. Taking them as they stand, *Cyrtopodium cristatum*, Griseb., grows more under the shade afforded by small trees on the borders; *C. cristatum*, Lindl., and the *Epistephium* delight in exposure to full sunshine. The flowers in each case are borne on stems some 2 feet or more in height. The first species has white, the second brownish-yellow, and the third rose-coloured blossoms. *Epistephium* appears to expand its flowers at night and upon sunless days, whilst the other two open throughout the day, and, presumably, at night also. When I visited the Aripo Savanna last April, the two *Cyrtopodiums* were in full flower, and a few *Epistephiums* were collected in bud and fruit at the same time. The ground was dry and hard at that time. Later (August), I went again to the same place, but only the *Epistephium* was in blossom, the others apparently coming into flower during the drier months of the year. In August these Savannas are partly under water. Another *Cyrtopodium* (*C. Andersonii*, R. Br.) grows in the islands that lie off the north-western portion of Trinidad, where it may be seen flowering among rocks near the sea during the month of May.

ONCIDIUM IRIMFOLIUM.—This free-flowering, pretty little plant I found growing in quantity upon an Akee tree (*Blighia sapida*). The bright yellow flowers are large compared to the size of the plant, and are freely produced. It may be mentioned that, although a native of the island, it has become established upon a foreign tree which had been planted on the cocoa estate where I found the *Oncidium*. *W. E. Broadway, Tobago, W. Indies.*

NEW INVENTION.

TUBE FOR BUTTON-HOLE FLOWERS.

THE little glass or metal tubes that are sometimes used to keep nosegays fresh have usually no means of holding the flowers tightly, and they are liable to drop out, or the water to spill. To overcome these disadvantages, Mr. A. T. Booth, Lynton, Westbury Road, Woodside Park, London, has designed a flower-holder with an inner tube that grips the flowers securely. The holder is oval, and tapered at the bottom, so that it can be easily slipped into the buttonhole. Having two tubes, the inner one which grips the flowers can be removed and fresh water added without disarranging them. A pliable clip secures the holder to the coat. Mr. Booth calls it the "Perfect" buttonhole flower holder.

LAW NOTE.

COMPENSATION FOR DEATH FROM LOCKJAW.

In the Bradford County Court, Ada Mortimer, of Cross Roads, Drighlington, recently sued under the Workmen's Compensation Act for the loss of her husband, Henry Lord Mortimer. The respondent was Mrs. Henrietta F. M. Greaves, of Bradenham House, High Wycombe, executrix of the late Sir Tristram Tempest, Bart. of Tong Hall. Henry Lord Mortimer was a gardener in the employment of Sir Tristram Tempest, and died in December, 1908, from lockjaw, due, according to the applicant's case, to tetanus germs entering his system while he was following his occupation as a gardener.

A friendly arrangement was come to whereby the applicant received the sum of £60.

The judge allocated £20 to the widow, and the remaining sum, at the rate of 10s. a week, for the support of her two children.

SOCIETIES.

ROYAL HORTICULTURAL.

THE following extracts are taken from the report of the Council, to be presented at the 106th annual general meeting of the Society, to be held at the Royal Horticultural Hall, at 3 p.m., on Tuesday next, February 8:—

THE ONE HUNDRED AND SIXTH YEAR.

The past year, though climatically unfavourable to horticulture, has, nevertheless, been a satisfactory one of progress in almost every branch of the Society's work.

WISLEY GARDENS.

The very heavy rainfall and continual damp, coupled with lack of sunshine, has had the same effect on the Society's gardens as on most other gardens in the south-east of England. The unfortunate effects have been felt especially in the trials, for which normal conditions are so particularly desirable for obtaining reliable results and records. Steady work has, however, been maintained, and many improvements effected. A new fruit wall, some 100 feet long, has been added, enabling the students to obtain instruction in the training of fruit trees on walls. A complete and commodious potting and working shed has also been built. The public path crossing the lower meadow has been fenced, in order to protect the newly-planted trees and shrubs from damage.

A large and valuable gift of Orchids received from J. B. Field, Esq., together with others from the Hon. Mrs. Henry Gladstone, Colonel Rippon, Mrs. Davies Evans, and our Treasurer, have emphasised the necessity for a new Orchid house, which it is hoped may be built during the coming year.

The value of the research and experimental work carried on in our laboratory at Wisley can hardly be over estimated. The School of Horticulture is also making most satisfactory progress. The results of the 1909 examinations have been highly encouraging, diplomas having been gained by eight out of the nine students who left at the end of the summer—as follows:—

Diploma examination (in order of merit):—

A. W. Simmonds (diploma and demonstratorship of £40 for one year); W. G. Kent (diploma and prize); J. Ridley (diploma and prize); H. W. Abbiss (diploma and prize); G. A. S. Brooks (diploma); S. B. Gorrings (diploma); H. L. Robson (diploma); N. A. Phillips (diploma).

Nicholson prize for observation:—

A. W. Simmonds.

General examination:—

J. W. McCaig (scholarship, £25 a year for two years, Silver-gilt Medal, certificate and prize); W. Miles (certificate and prize); W. G. Kent (certificate and prize); H. L. Robson (certificate and prize); A. W. Simmonds (certificate and prize). Certificates were also awarded to twelve other students.

These awards were distributed on October 6 by Harry James Veitch, Esq., V.M.H., who was accompanied by other members of the Council, together with the Right Hon. Arthur C. Dyke-Acland, Ex-Minister of Education, who gave a short address. Mr. James Hudson, V.M.H., also gave advice arising from a life-long experience as a practical and scientific gardener.

It was not a little gratifying to find a Wisley student, Mr. McCaig, placed first in the general examination, of candidates from all parts of the Empire, thereby becoming entitled to the two years' scholarship of £25 a year offered by the Society and the Worshipful Company of Gardeners alternately. For the second year in succession this distinction has been won by a student of the Society.

The prize of £5 given by Mr. Hudson, V.M.H., as a memento of his having passed the Society's examination in horticulture just 40 years ago, deserves a very pleasant acknowledgment. The amount was devoted to prizes awarded to those students who have successfully passed the Society's general examination.

In 1910 diplomas are again offered by the Council for the students, the following prizes being also available for award, viz.:—Mr. Arthur Sutton's prize of £3 10s., to be divided amongst the students at the discretion of the Council; and the Nicholson prize of £2 2s. a year, given to the student who shows the greatest power of practical observation on the fauna and flora of the garden and district. A prize of £5 has also been offered by Mrs. G. F. Wilson for the student producing the best collection of dried plants and insects, for which the Council sincerely thank her.

INNES' CHARITY.

An order has been made by the Charity Commission respecting the charities of John Innes, in the parish of Merton, Surrey. The charity provides for the foundation of a horticultural institution at Merton for the promotion of horticultural instruction, experiment, and research. The order institutes a council of 12 representative members, nominated partly by other kindred institutions. The Council of the Royal Horticultural Society obtained the permission of Sir Daniel Morris, K.C.M.G., V.M.H., to nominate him as their representative, and are glad to find that he has at once been appointed Vice-Chairman of the Council of the new institution. Professor Bateson, F.R.S., V.M.H., has been elected Director.

PORTRAITS.

1) Baron Schröder.—It is a matter of great assistance to the Council to have at last secured a full-length portrait of Baron Schröder, to whom the Society has been, and still is, so greatly indebted, and who in our centennial report was justly named "The Father of

and beneficent of organisations, the Royal Horticultural Society, Nova Scotia was represented and shortly afterwards consignments were sent to London."

The following extract from a letter recently received from South Africa also testifies to the good work done by the R.H.S. Colonial Shows: "I trace to your institution of Colonial Shows the beginning of our export trade in Citrus fruits, which in time will, I think, become of the utmost importance to South Africa."

PRESENTS.

The Council acknowledge and tender their thanks for several gifts which have reached them during the year. Among these may be mentioned a marble bust of Sir Joseph Paxton, presented by Lord Brassey; a valuable microscope for Wisley, from Mr. C. G. A. Nix; some of Mr. Luther Burbank's recent introductions, from Mrs. Roth; a large collection of Orchids, from Mr. J. A. Field; and a valuable consignment of *Vanda cœrulea*, from Colonel Rippon. Gifts of lantern slides are also acknowledged from the Rev. J. B. Hall and Mr. Arnett, of Corbridge; Mr. E. Beckett, V.M.H.; Mr. Jas. Hudson, V.M.H.; Mr. J. Alexander; and Mr. W. Wells.

PRIZES.

Offers of prizes to be awarded by the Council have been received and accepted from the General Bulb Growers' Society at Haarlem for forced bulbs; from Mr. Robert Sydenham for bulbs grown in fibre; and from Mr. Robert Ker for Amaryllis; the Council having fixed the dates March 8 and 9—the Society's Spring Bulb Show for the award. Other special prizes and cups will be found mentioned in Notices to Fellows.

MASTERS LECTURES.

The foundation of these lectures, in memory of the late Dr. Masters, F.R.S., V.M.H., led the Council to invite Professor Hugo de Vries, of Amsterdam, to deliver the first two lectures during 1909, his subjects being (1) "Masters' Vegetable Teratology," and (2) "The Production of Horticultural Varieties." Both were well attended, and are fully reported in the Society's *Journal*. The Masters Lecturer in 1910 will be Mr. A. D. Hall, F.R.S., of Rothamsted, who will speak on February 22 and March 22 on the "Adaptation of the Plant to the Soil."

AUTUMN FRUIT AND VEGETABLE SHOWS, 1910.

As already announced, the Great Autumn Fruit Show will be resumed in 1910, the date fixed being October 13 and 14. It had been intended to hold a show of vegetables at the same or immediately following date, but circumstances have decided the Council to defer the Vegetable Show until Tuesday, October 25. The schedule of prizes for both shows will be issued shortly.

PRITZELS' ICONES BOTANICARUM.

This most invaluable book, containing, when first published, a list of all the known plates and illustrations of plants, has not been kept up to date, and botanists and horticulturalists the wide world over are most anxious for a revision brought up to date. The authorities at Kew have been approached by the Society during the past year with a view to this being done. The estimated cost is about £3,000, and it was suggested that other societies and universities should combine with us to provide the necessary funds, the R.H.S. undertaking to give a handsome proportion. Lieut.-Col. Prain, F.R.S., most kindly interested himself in the suggestion, offering all necessary assistance. It is to be regretted that no further promises of co-operation or of funds have as yet been forthcoming, but all hope of this most needed publication will not be abandoned. It is quite possible that some generous friend of horticulture and of botany might feel disposed to couple his name with such a permanent and enduring work.

INTERNATIONAL EXHIBITION.

From time to time, in recent years, international horticultural exhibitions have been held at various centres on the Continent, as at Paris, Berlin, Ghent, Turin, &c. The last occasion on which Great Britain took the part of host in these international courtesies was in 1866, and the Council of the Royal Horticultural Society feel that it is time that our country made an effort to return some part of the hospitality which foreign countries have so often extended to us during the 40 years which have elapsed since such a gathering was held in London. It has further been suggested that in connection with it a fourth conference should be held on Genetics, i.e., on the origin, breeding, and heredity of plants.

THE HALL.

Many improvements have been made in the Hall to equip it suitably and thoroughly for the growing demand for its occupation. A sound board has enormously improved the acoustics, it being now possible to address an audience with ease and comfort from beneath it. The old-fashioned arc lamps have been replaced by more modern white enamelled lamps, having an increased illumination; and a finished appearance has been given to the facade by the erection of two handsome bronze standard lamps, one on either side of the main entrance.

HONORARY LIFE FELLOWS.

Sir William T. Thistlethorn-Dyer, K.C.M.G., F.R.S., and Sir Daniel Morris, K.C.M.G., V.M.H., have been appointed Honorary Life Fellows of the Society under By-law XVI.

ORCHID NOMENCLATURE.

The rapidly increasing number of multi-generic hybrids, and the confusion likely to arise unless a definite system of nomenclature is created, led to the formation of a Special Committee to consider what system would be most suitable. Their report has been

received; it summarises the opinions of expert scientists and hybridists, at home and abroad, and the Council have sent it for consideration at the International Congress to be held at Brussels in April next.

ROYAL BOTANIC SOCIETY.

During the year communications have passed between the R.H.S. and the Royal Botanic Society, which have, however, produced no definite result.

SHOWS IN 1909.

During the year 31 exhibitions, covering 37 days, have been held by the Society.

OBITUARY.

The Society has lost many valued friends and supporters during the past twelve months, and among them we regret to find:—His Majesty the King of the Belgians; Lord Amherst of Hackney; Hon. Mrs. Cecil Bingham; Col. W. E. Brymer; John Carder, F.R.G.S.; Rt. Hon. Sir John Colomb, K.C.M.G.; Sir Daniel Cooper, Bart.; Cæsar Czarnikow; Sir Charles Gibbons, Bart.; James Harper; Charles Jefferies; Earl of Leicester; Lily Duchess of Marlborough; William Roupell; Dr. G. S. Sutherland; J. Vavasseur; H. G. Rimestad (Java); Peter Barr, V.M.H.; Earl of Carysfoot; Norman C. Cookson; John Forbes; Peter E. Kay, V.M.H.; Dr. W. H. Dallinger, F.R.S.; Dr. W. J. Russell, F.R.S.; H. F. Simonds; G. Dickson, V.M.H., &c., &c.

VICTORIA MEDAL OF HONOUR.

Of the foregoing list, three were valued Victoria Medalists of Honour. The Council has offered the vacant medals to Messrs. W. Betting Homley, F.R.S.; J. H. Goodacre, and A. Mackellar, who have accepted the distinction.

RETIRING MEMBERS OF THE COUNCIL.

Lord Balfour of Burleigh, K.T., Sir Albert Rollit, LL.D., Litt.D., D.C.L., and Mr. James Hudson, V.M.H., retire from office. Each has allowed himself to be renominated.

ANNUAL PROGRESS.

The following table will show the Society's progress in regard to numerical strength during the past year—

LOSS BY DEATH IN 1909.			
		£	s. d.
Life Fellows	18	0	1 0
4 Guineas	1	4	0 0
2 "	4	10	18 0
1 "	1	7	10 0
	18	218	12 0
LOSS BY RESIGNATION, &c.			
		£	s. d.
4 Guineas	3	12	12 0
2 "	168	32	16 0
1 "	4	4	1 0
Associates	23	12	1 6
Affiliated societies	22	23	2 0
	617	821	12 6
Total loss	735	219	24 6

FELLOWS ELECTED IN 1909.			
		£	s. d.
Hon. Fellows	3	0	0 0
4 Guineas	8	32	12 0
2 "	61	128	1 0
1 "	84	6	4 0
Associates	26	13	13 0
Affiliated societies	31	32	11 0
Commutations	161	1	
= £494 5s. 6d.			
	1,278	219	24 0
Deduct loss		199	24 6
Net increase of income		£97	15 6

New Fellows, &c.	1,278
Deaths and Resignations	735
Numerical increase	543
Total on December 31, 1908	10,807
Total on December 18, 1909	11,350

COMMITTEES, &c.

The Society owes a constantly recurring debt to the members of the committees, the judges, writers of papers for the *Journal* and the compilers of extracts, the reviewers, lecturers, and the several examiners who, during the past twelve months, have done so much to contribute to the potential energy of the Society's usefulness, and to help maintain its high standing among the practical and scientific institutions of the world. The Council also extend their acknowledgment to the Press for their invaluable assistance in reporting upon, and calling attention to, the work of the Society.

By Order of the Council,

W. WILKS, Secretary.

Royal Horticultural Society,
Vincent Square, Westminster, S.W.,
December 31, 1909.

Scientific Committee.

JANUARY 25.—*Present*: Mr. E. A. Bowles, M.A., F.E.S., F.L.S. (in the Chair); Dr. A. B. Rendle, Messrs. A. D. Michael, H. J. Chapman, J. W. Odell, J. T. Bennett-Pow, J. Douglas, W. Hales, A. Worsley, W. E. Ledger, A. W. Sutton, and F. J. Chittenden (hon. secretary).

Isoloma cianthum.—Mr. J. W. Odell showed a specimen of an *Isoloma*, probably *I. cianthum*, figured in *Botanical Magazine* 7907; but the flowers were of a deeper red than in the figure.

Cyclamen latifolium (persicum).—Messrs. BARR & SONS, King Street, Covent Garden, showed plants of *Cyclamen persicum* grown from corms collected near Smyrna, in Asia Minor. The amount and distribution of the white markings on the foliage showed a considerable degree of variation, and there was also some amount of variation in the extent of the pink suffusion on the white ground of the flowers, which were much smaller than those of the cultivated plant, and which were possessed of a very sweet scent, too often lacking in those at present cultivated. Mr. SUTTON remarked that the plant was exceedingly common in Palestine; but the corms were usually too large to remove.

Dying bulbs.—Some *Narcissus* bulbs were received without roots and in various stages of decay. It was thought that there was something wrong in the system of cultivation, particularly as the soil was very wet.

NATIONAL CHRYSANTHEMUM.

The following extracts are taken from the Report of the Executive Committee of the National Chrysanthemum Society, to be submitted at the annual general meeting, to be held on Monday next, at Carr's Restaurant, Strand:—

REPORT OF THE EXECUTIVE COMMITTEE FOR THE YEAR 1909.

"Owing to the legal proceedings in connection with the Crystal Palace Company, your Committee were only able to arrange for one large show in 1909, which was held on November 3, 4 and 5. Your Committee greatly regretted that it was not possible to hold the early and late shows as heretofore, as they consider these smaller shows to be an important and essential part of the National Society's work. The October and December shows of this Society have been almost unique in this country, and have afforded an opportunity of studying the early and late varieties, which has been much appreciated by Chrysanthemum growers in general and members of the Society in particular. Your Committee consider the holding of these extra shows as part of the settled policy of the Society, and subject to being able to make the necessary financial arrangements they will again be included in the Society's programme in the future."

The grand autumn show held at the Crystal Palace in November must be proclaimed an emphatic success in spite of one or two circumstances which might have been expected to militate against it. The Chrysanthemum season was perhaps not at its utmost height until about a week after the show, and the extremely wet weather experienced during the whole summer and autumn, and especially during the week or two prior to the show, caused a diminution in the number of entries from amateurs. This, however, was counterbalanced by the entries in the open classes and the trade exhibits. Both the naves at the Crystal Palace, as well as part of the central transept, were again thrown open to the Society's exhibits. Competition in the classes for large Japanese blooms was very keen, but for Incurred blooms the date was early and the entries suffered also by reason of several withdrawals at the last hour. The trade exhibits were again a dominating feature of the show and the thanks of the Society are due to all those members of the trade who so consistently rally to the support of the Society.

Sir Albert Rollit, president, presided at the judges' luncheon, which was held at the Crystal Palace on the first day of the show. In proposing the toast of "The Judges," the President acknowledged with gratitude the great services rendered by these gentlemen in an honorary capacity, and pointed out that the strict impartiality with which the judges made their awards at all the Society's shows had helped in a large measure to place the Society in the high and honourable position which it held in the horticultural world.

A highly-successful conference was held at Essex Hall, on Wednesday, October 6th, 1909. Mr. T. Bevan occupied the chair at both the afternoon and evening sessions, and the following papers were read:—"Chrysanthemums as Annuals," by Mr. Chas. H. Curtis; "Early Single Chrysanthemums," by Mr. W. Wells; "Late Market Chrysanthemums," by Mr. J. B. Riding; "The Best Chrysanthemums for Cut Flowers," (a) from a commercial point of view, by Mr. P. A. Cragg; (b) from an aesthetic point of view, by Mr. D. B. Crane.

Eighty-three members were present at the afternoon session, and 115 at the evening session, but in reckoning the value of these gatherings regard must be had to the very much larger audience to which the speakers were in reality addressing their remarks through the medium of the Press. Full reports of the papers and discussions appeared in the horticultural Press, and a short resumé of the proceedings will be issued in the 1910 schedule.

Several members of the trade exhibited groups of cut flowers and plants at the hall, and a unique exhibit was

that of a bag of five gallons of Chrysanthemum seed by Messrs. W. Wells and Co., Ltd. This was probably the first time in history that such an exhibit was to be seen, and gave additional interest to the opening paper on "Chrysanthemums as Annuals."

Arrangements have already been made for the holding of another conference in December next, full particulars of which will be issued to members in due course.

FLORAL COMMITTEE.

Eight meetings of the Floral Committee were held during the season, when 188 new varieties were submitted for consideration; of these 26 were awarded First-class Certificates, while 12 were commended. Votes of thanks were also passed to Mr. J. H. Witty and Messrs. W. Wells and Co., Ltd., for collections of early varieties at the September meeting. In several cases the Committee expressed a desire to see certain varieties again, and in this connection it is interesting to note that in more than one case where a similar desire was expressed in 1908 blooms were again brought forward in 1909 and were found to be well worthy of award.

The sections to which the certificates were awarded are shown in the following table:—

Early-flowering Japanese	2	First-class Certificates.
Japan-se	6	do.
Early-flowering Singles	2	do.
Singles	4	do.
Japanese Single	1	do.
Incurved	3	do.
Decorative and Market	8	do.

In the list of certificated and commended varieties which will appear in the schedule a description of each variety will be given, and this, it is believed, will make the list still more useful to members.

Award for Colour.—The question of granting a special award for colour was very fully considered, both by the Floral Committee and the Executive Committee, and it was unanimously decided to institute a new award to be known as an "Award for Colour." It sometimes happens that a variety is submitted to the Floral Committee which has a particularly pleasing shade of colour but which may not reach the necessary standard of quality on all points to receive the First-class Certificate. From a decorative point of view, however, such flowers are especially worthy of notice, and it will now be in the discretion of the Committee to grant an Award for Colour in these cases.

The members of the Floral Committee met at dinner on December 13, under the chairmanship of Mr. D. B. Crane, when many matters of great interest to the Society were discussed. Mr. W. Wells related some of his experiences during the business tour in America from which he had just returned, and attention was drawn to the fact that the records of this Committee's work are published not only throughout the British Empire, but also in the horticultural Press of America and several European countries, thus proving that our work is not only national, but also international.

The close of the financial year finds the Society in a much more satisfactory position than was anticipated earlier in the year. For the first time for some years the balance-sheet discloses the fact that the whole of the ordinary liabilities of the Society were paid before the accounts were ruled off. The position is therefore summarised as Assets, £104 15 8d.; liabilities, nil.

The delay of the Crystal Palace Company in paying the consideration money due to the Society under the 1908 contract was referred to in the last report. Unfortunately your Committee were compelled to place the matter in the hands of the Society's solicitors, and judgment was obtained against the company. Before execution could be levied, however, a receiver was appointed by the High Court on behalf of the debenture-holders, and the Board of Directors ceased to have any control. The Receiver, Mr. E. I. Husey, is still in possession, and an order has been made for the winding-up of the Crystal Palace Company. Several schemes have been mooted for the preservation of the Crystal Palace, but these have all been fully referred to in the public Press, and it is not, therefore, necessary to consider them further here.

In the circumstances in which they were placed, your Committee were regretfully compelled to bring into operation Rule XI. By drawing upon the whole of the Society's reserve fund the Committee were able to pay 50 per cent. of the prize money, and this was paid to the prize-winners with an undertaking that the balance should be paid as and when the remainder of the money due from the Crystal Palace Company might be received. The affairs of the company are not yet settled, and it will probably be some time before the liquidation is completed.

The contract for the holding of the 1909 show was made with the Receiver, Mr. E. I. Husey, and the consideration money was paid in full on the first day of the show. The prizes were all issued to the winners immediately thereafter.

The Committee have decided to hold shows during 1910 at the end of September or beginning of October, November 8, 9 and 10, and December, the latter being in conjunction with the conference to be held at Essex Hall. Negotiations are now proceeding with regard to same.

The annual outing was held on August 9, when about 130 members and friends paid a visit to the gardens at Friar Park, Henley-on-Thames. We were fortunate in securing one of the few real summer days of 1909, and the trip on the steam launch from Maidenhead to Henley materially added to the day's pleasure. After inspecting the house and gardens at Friar Park, the members were entertained to tea by Sir Frank Crisp, and everybody expressed complete satisfaction with the day's programme. The heartiest thanks of the members were expressed to Sir Frank Crisp for his hospitality.

The annual dinner was held on November 29 at the Holborn Restaurant, when the chair was occupied by the President of the Society, Sir Albert Rollit, and there were present over 120 members and friends. The Holmes Memorial cups and trophies were presented to the winners, and an excellent programme of music was given under the direction of Mr. H. Borden. The speeches on this occasion were for the most part commendably short.

Special prizes were given during the past year by the

following donors, viz.: Sir Albert Rollit, D.C.L., LL.D., President; C. E. Shea, Esq., Vice-President; the Ichthemis Guano Company, Mr. R. Sydenham and Mr. J. Williams, Messrs. Clay & Son, Messrs. W. Wells & Co., Ltd., Mr. R. F. Felton, and Messrs. Webb & Sons. To all of these the Committee tender their grateful thanks, at the same time expressing the hope that all these names will be found in next year's list of special prize-donors, together with many more which have never yet figured in that list.

The membership of the Society has not progressed as much as the Committee would have liked, and they again ask the present members to use their best endeavours to increase the membership roll during the coming year.

In connection with the International Exhibition to be held at Brussels during 1910, the President of this Society, Sir Albert Rollit, is acting as Chairman of the English section of horticulture, and Mr. Thomas Bevan and Mr. C. Harman Payne are serving on the Committee. It is hoped that the Society will be able to send a representative exhibit to the Chrysanthemum show during the last week in October on similar lines to that which was sent to Paris in 1900.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

JANUARY 29.—The 21st anniversary dinner of this society was held at the Café Royal, Regent Street, when a large company assembled to do honour to the occasion. Among those present we noticed Sir Albert K. Rollit, Messrs. Lageat, Lelasseur & Son, Huguenet, H. J. Veitch, A. Sutton, H. B. May, Witty, Bevan, McKerchar, Ingamells, Clarke, Wright, Hawes, Gaskill, Harman Payne, and others.

M. Philippe de Vilmorin was to have presided, but, as Mr. Schneider explained, owing to the disaster in Paris, he had been unavoidably prevented, and M. T. A. Laurence de Lalande, French Consul-General in London, had kindly consented to occupy his place.

After the toasts of the President of the French Republic and the King had been received, Sir Albert Rollit was invited to say a few words. This he did, making a most humorous and effective speech, the points of which were appreciated both by Frenchmen and Englishmen. Sir Albert commented on the value of horticulture, and these friendly gatherings as a great factor in preserving the peace of Europe. Sir Albert's wit and humorous stories put the company into the happiest frame of mind at the start, and materially helped towards the brightness of the proceedings.

The chairman followed with the toast of the evening, "La Société Française d'Horticulture de Londres." Although it was an unexpected honour for him to be called upon to preside, he was glad to be able to render the service. He felt they would all agree that a word of sympathy should be sent to M. de Vilmorin, expressing their regret at the unfortunate cause of his absence. He (the Chairman) was not able at such short notice to give them any detailed particulars concerning the progress of the society, but they were to be congratulated on the fact that, beginning in a humble way with a very few members, they had now reached a total of about 700. The seed sown 21 years ago had borne fruit, and the little plant had now grown into a great tree. To Mr. Schneider the success was largely due. His energy, devotion, and permanent residence in London all contributed to the prosperity of the society, and the chairman was pleased publicly to express his high appreciation of all that Mr. Schneider had done for the society and for his young countrymen. After alluding to the love of horticulture as being world-wide, he gave some interesting details of his experiences in Japan, and concluded by proposing the continued prosperity of the society.

Mr. Schneider said those connected with the society must all be pleased with the result of their labours. He was glad to show their English friends how fully he appreciated their help. The young Frenchmen who came here highly valued the opportunities afforded them, and were much benefited by the experience gained in this country. They had intended this year to show their gratitude by voting from their funds £30 to the Gardeners' Royal Benevolent Institution, and £20 to the Royal Gardeners' Orphan Fund, but, in the distressing circumstances in which his own countrymen in Paris found themselves, he was sure their English friends would not mind the money being diverted to the Lord Mayor's Fund for the relief of the sufferers in France. He concluded by drinking to the success of English horticulture.

Mr. H. J. Veitch responded, pointing out the many advantages of horticulture, which thrives with peace, and which the cottager can enjoy with equal pleasure as the rich. Flowers were used in all the eventful stages of a person's life, and helped to comfort those who were sick. He cordially endorsed, as an official of the Gardeners' Royal Benevolent Institution, the proposition Mr. Schneider made, to which he was sure Mr. May, who represented the Royal Gardeners' Orphan Fund, would also agree. He hoped, however, that the good intention of the society might be carried out at a later date.

Mr. H. B. May proposed the health of the officers of the society. The last time he was present at the annual dinner his old friend, Mr. Geo. Nicholson, of Kew, occupied the chair. Since then great progress had been made, and, although Mr. Schneider was the life and soul of the society, he had been helped in the work by his colleagues. He therefore proposed the health of the officers.

M. Guillaud responded in a few well-chosen phrases on their behalf. He pointed out that, in addition, a measure of their success was due to their past presidents. Mr. Harman Payne, besides being one of these, was one of their oldest friends and supporters, and he would ask them to honour the toast of their health.

Mr. Harman Payne said all their past presidents were glad to have been of service to them, and concluded a somewhat humorous speech by alluding to the help the society had received from the horticultural Press. This was acknowledged by Mr. C. H. Curtis.

A collection was made in the room on behalf of the Lord Mayor's Fund. Amid great applause it was announced that the sum of £100 1s. 6d. had been collected. The chairman, reading from an evening paper, said that the King had subscribed 1,000 guineas and the Queen £1,000, which raised a unanimous cry of "Vive le Roi! Vive la Reine!"

"The Chairman," by Mr. T. Bevan, responded to by M. de Lalande, was duly received. A presentation of a handsome Sèvres vase was made to Mr. Schneider by the young members of the society resident in London.

ABERDEEN UNIVERSITY AGRICULTURAL.

JANUARY 21.—Mr. John Michie, M.V.O., factor on the Balmoral Castle estates, lectured on "Practical Forestry" on the above date. Mr. William Dawson, lecturer on Forestry in Aberdeen University, presided.

Mr. Michie dealt with the growth of forest trees for the production of timber, and said that the tree best suited for the high-lying Scottish glens and hill-sides was the Douglas Fir. The lecturer then dealt with the Spruce tree, showing how successfully it had been cultivated in Germany and in other countries. He explained the system adopted in Germany for the cultivation of this tree, and said the same system could be adopted in this country with success. Many good specimens had already been grown in Scotland. The Spruce was planted in Scotland for purposes of shelter, shade and ornament in boggy and other damp places. Spruce had been planted indiscriminately with regard to soil and situation, and this had given the tree a bad reputation, particularly with reference to disease. After speaking on the soils and situations which induced disease, Mr. Michie dealt with the Scots Pine trees, and showed how they were treated in practically the same way in Germany as was the Spruce. The best situation to plant Pine trees was where Larch or Spruce did well, in glens and hillsides, where there was little surface soil, and with open gravel below, no matter how poor it was from an agricultural or pastoral point of view. Dealing with the Larch tree, Mr. Michie said that, unlike either Spruce or Pine, Larch should be grown fairly openly on the ground, but in homogeneous masses, or in company with trees that grew much smaller than itself, so that half its height might project above the general covering of the forest. Some of the best Larches he had seen were associated with Beech. Almost any soil would produce useful Larch wood provided the ground was well drained, and, if of close texture, broken up to admit of the free spread of the roots. Probably the finest trees were found on open, sandy loam, or debris of almost any formation.

MARKETS.

COVENT GARDEN, February 2.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Acacia dealbata (mimosas), per doz. bunches...	9 0-12 0
Azalea, Ghent, per bunch...	0 9-1 0
Fielder, p. dz.	3 0-5 0
Bouvardia...	6 0-8 0
Calla (see Richardia)	
Carnations, p. doz. blooms, best	2 0-3 0
American (var.)	1 6-2 0
— second size	1 6-2 0
— smaller, per doz. bunches	12 0-18 0
Camellias, per doz.	1 6-2 6
Cattleyas, per doz. blooms	12 0-14 0
Daffodils, best, per doz. bunches	5 0-8 0
— seconds	4 0-6 0
— double, per doz. bunches	4 0-5 0
Eucharis grandiflora, per dozen blooms	3 0-4 0
Freemias, per doz. bunches	1 6-2 0
Heather (white), per bunch	0 4-0 6
Hyacinths, Roman, per doz. bchs.	6 0-9 0
Lapageria alba, per dozen blooms	2 0-3 0
Lilac (French), per bunch	4 0-5 0
Lilium amatum, per bunch	2 0-3 0
— longiflorum	4 0-6 0
— lancifolium rubrum	2 0-2 6
— album	1 6-2 0
Lily of the Valley, p. dz. bunches	6 0-9 0
— extra quality	12 0-15 0
Marguerites, p. dz. bunches white and yellow	3 0-4 0
Mignonette, per dozen bunches	3 0-4 0
Narcissus poeticus (Pheasant's Eye), per doz. bunches	3 0-3 6
Soleil d'Or	2 0-3 0
Odontoglossum crispum, per dozen blooms	2 0-2 6
Pelargoniums, show, per doz. bunches	4 0-6 0
— Zonal, double	6 0-8 0
Richardia africana (Calla), p. doz.	4 0-6 0
Roses, 12 blooms	2 6-3 0
Niphetos	3 0-4 0
— Maidenhead	3 0-4 0
— C. Testout	3 0-4 0
— Kaiserin A.	4 0-6 0
— Victoria	3 0-4 0
— C. Metmel	4 0-8 0
— Liberty	4 0-8 0
— Mme Chateau	4 0-8 0
— Richmond	4 0-6 0
— The Bride	4 0-5 0
Spiraea, p. dz. bchs.	2 0-4 0
Statice, p. dz. bchs.	3 0-4 0
Tuberoses, per doz. blooms	4 0-5 0
Violets, per dozen bunches	3 0-4 0
— Parma	4 0-5 0

Cut Foliage, &c.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Adiantum cuneatum, per dozen bunches	6 0-9 0
Asparagus plumosus, long trails, per doz.	8 0-12 0
— medium, doz.	12 0-18 0
— bunches	0 9-1 6
Sprengeri	0 9-1 6
Berberis, per dozen bunches	2 6-3 0
Croton leaves, per bunch	12 0-15 0
Cycas leaves, each	1 0-2 0
Ferns, per dozen bunches (English)	2 0-3 0
Ferns (French)	0 6-0 9
Galax leaves, per doz. bunches	1 6-2 0
Hardy foliage (various), per dozen bunches	3 0-9 0
Ivy leaves, bronze	2 0-2 6
— long trails, per bundle	0 9-1 6
— short green	1 6-2 6
per doz. bunches	4 0-5 0
Moss, per gross	4 0-5 0
Myrtle, dz. bchs. (English)	4 0-6 0
— small-leaved	1 0-1 6
— French	6 0-8 0
Smilax, per dozen trails	6 0-8 0

Plants in Pots, &c.: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Ampelopsis Veitchii, per dozen	6 0-8 0
Aralia Sieboldii, p. dozen	5 0-8 0
— larger specimens	9 0-12 0
— Moseri	6 0-8 0
— larger plants	12 0-18 0
Araucaria excelsa, per dozen	12 0-30 0
— large plants, each	3 6-5 0
Aspidistras, p. dz., green	15 0-24 0
— variegated	30 0-42 0
Asparagus plumosus nanus, per dozen	9 0-15 0
— Sprengeri	9 0-12 0
— tenuissimus	9 0-12 0
Azaleas, per doz.	30 0-42 0
Begonia Gloire de Lorraine, p. dozen	12 0-18 0
Chrysanthemums, per doz.	8 0-12 0
Clematis, per doz.	8 0-9 0
Cocos Weddelliana, per dozen	18 0-30 0
Crotons, per dozen	18 0-30 0
Cyclamen, per doz.	8 0-12 0
Cyperus alternifolius, dozen	4 0-5 0
— laxus, per doz.	4 0-5 0
Daffodils, per doz.	6 0-8 0
Dracenas, per doz.	9 0-24 0
Erica gracilis, per dozen	10 0-15 0
— hyemalis	9 0-15 0
— small plants (various)	3 0-5 0
Euonymus, per dz., in pots	3 0-8 0
— from the ground	3 0-6 0
Ferns, in thumbs, per 100	8 0-12 0
— in small and large 60's	12 0-20 0
— in 4's, per dozen	4 0-6 0
— choicer sorts	8 0-12 0
— in 32's, per dozen	10 0-18 0
Ficus elastica, per dozen	9 0-12 0
— repens, per dz.	6 0-8 0
Genistas, per dz.	10 0-12 0
Grevilleas, per dz.	4 0-6 0
Hyacinths, per dz. pots, 8 in a pot	8 0-10 0
Isolepis, per dozen	4 0-6 0
Kentia Belmoreana, per dozen	18 0-24 0
— Fosteriana, per dozen	18 0-30 0
Latania borbonica, per dozen	15 0-21 0
Lilium longiflorum, per dz.	24 0-36 0
— lancifolium, p. dozen	18 0-30 0
Lily of the Valley, per dozen	18 0-30 0
Marguerites, white, per dozen	6 0-9 0
Mignonette, per dozen	6 0-8 0
Selaginella, p. doz.	4 0-6 0
Solanums, per doz.	6 0-9 0
Spiraea japonica, per dozen	6 0-9 0
Tulips in boxes of 24 bulbs	1 6-2 0

Fruit: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Apples Newtown (U.S.), per barrel	29 0-33 0
— (Nova Scotian), per barrel	
— Baldwin	14 0-17 0
— Greening	13 0-17 0
— Russett	17 0-22 0
— Fallwater	14 0-17 0
— Ribston Pippin	14 0-15 0
— Blenheim Pippin	14 0-16 0
— King of the Pippins	13 0-16 0
— (English), per bushel	
— Peasgood's Nonesuch	4 6-6 0
— Annie Elizabeth	5 0-6 0
— Alington Pippin	3 0-4 6
— Newton Wonder	5 0-6 0
— Bramley's Seedling	5 0-7 0
— Lane's Prince Albert	5 0-6 0
— Cox's Orange Pippin, ½ sieve	5 0-8 0
— Newtown Pippin, per case	
— Oregon	11 0-13 0
— Californian	8 0-10 6
— British Columbia	12 0-18 0
Apricots (Cape), per box (15 to 28 fruits)	4 0-6 0
Bananas, bunch	
— Doubles	10 0—
— No. 1	8 0-10 0
— Extra	8 0-10 0
— Giant	9 0-11 0
— Red coloured	4 6-6 0
— Red Doubles	8 0-9 0
— Jamaica	5 0-5 6
— Loose, per dz.	0 6-1 0
Cranberries, case	6 0-8 0
Custard Apples, p. dozen	9 0-15 0
Grape Fruit, case	9 0-11 0
Grapes, per lb.	
— Gros Colmar	1 4-2 6
— A quality	0 6-1 0
— B quality	1 6-2 0
— B quality	0 8-1 3
— Canon Hall, A quality	8 0-10 0
— B quality	4 0-6 0
— Gros Colmar (Belgian)	0 6-1 6
— (Almetia), per barrel	14 0-20 0

Vegetables: Average Wholesale Prices.

s. d. s. d.	s. d. s. d.
Artichokes (Globe), per dozen	1 6-1 9
— Jerusalem, ½ sieve	0 9-1 0
Asparagus, Paris Green, bundle	4 0-4 6
— Sprue, bundle	0 9-0 11
Beans (English and Chan. Islands), per lb.	2 6-3 6
— Broad (French), per pad	5 0-6 0
— (Madeira), per basket (6 to 8 lbs.)	2 6-5 0
Beetroot, per bushel	1 6-1 9
Cabbages, p. tally	3 0-4 0
Cardoons (French), per dozen	8 0-10 0
Carrots (English), dozen bunches	2 9-3 0
— per bag	3 0-3 6
— unwashed	1 9-2 0
Cauliflowers, tally	7 6—
— (Italian), basket	1 6-1 9
Celeriac, per doz.	1 6-2 6
Celery, p. dz.	10 0-16 0
— "Fans," per dz.	12 0-18 0
Chicory, per lb.	0 3-0 3 ½
Cucumbers, p. doz.	9 0-12 0
Endive, per dozen	2 0-2 6
Horseradish, foreign, new, per bundle	1 0-1 6
— 12 bundles	12 0-18 0
Leeks, 12 bundles	1 0-1 6
Lettuce (French), per dozen	1 4-1 9
Mushrooms, per lb.	0 9-1 3
— broilers	0 6-0 7
Mustard and Cress, per dozen pun.	1 0—
Onions (Dutch), p. bag	3 6-4 0
— pickling, per bushel	3 0-4 0
— (Valencia), per case	6 6-8 0
Parsley, ½ sieve	1 6—
Parsnips, per bag	2 0-2 6
Potatoes (Channel Islands), per lb.	0 6-0 8
— (Teneriffe), per cwt.	13 0-14 0
Rhubarb (forced), doz. bundles	0 8-0 10
Radishes (French), per doz. bunches	1 3-1 6
Seakale, per dozen punnets	8 0-10 0
Spinach, ½ sieve	2 6—
Sprouts, ½ sieve	1 3-1 6
— per bag, 28 lbs.	1 9-2 0
Stachys tuberosa, per lb.	0 4—
Tomatoes	
— (Teneriffe), per bundle	8 0-14 0
Turnips, 12 bchs.	2 0-3 0
— bags	2 9-3 0
Turnip Tops, bag	2 0-2 6
Watercress, p. flat	4 0-6 6

REMARKS.—Apples of good quality including some from Oregon and California are selling well. There are some fine samples of American Newtown Pippin. Oranges continue to sell at low prices, with the exception of extra selected fruits. Mandarines are arriving in larger quantities and are cheaper. Pineapples are a short supply. Madeira Beans are cheaper. The demand for Rhubarb is slow, notwithstanding a smaller supply. The Grape trade is very fair. Many of the Cape Peaches have arrived in an unsaleable condition, and the variety, so far, is not of the best market type. The vegetable trade is quiet. Trade generally is fair. E. H. R., Covent Garden, Wednesday, February 3, 1910.

Potatoes.

per cwt.	per cwt.
Bedfords—	
Up-to-Date ...	3 0-3 9
Blacklands ...	2 6-2 9
Dunbars ...	5 6-5 9
Mancrop ...	4 6-5 0
Up-to-Date ...	2 6-3 0
Lincolns—	
Evergood ...	3 0-3 8
Sharpe's Express ...	
Lincolns—	
Up-to-Date ...	3 3-4 0
British Queen ...	3 3-3 9
Royal Kidney ...	2 6-3 0
Mancrop ...	4 0-4 3
King Edwards ...	3 0-3 6
Kents—	
May Queen ...	3 0-3 6
Up-to-Date ...	3 6-4 0

REMARKS.—Trade is slow and arrivals have been very light on account of the severe weather, but now there is a change the supplies may increase. Edward J. Newborn, Covent Garden and St. Pancras, February 2, 1910.

COVENT GARDEN FLOWER MARKET.

Many stands in the market are empty, the growers being engaged with cultivating their spring crops in the nursery. As soon as the weather becomes more settled, many stands in the flower market will be filled with hardy plants. Before the last extension of the market most of these, together with trees, shrubs, &c., were sold outside the covered flower market. The growers will soon commence marketing Pansies, and for some weeks they are sure to be a feature in Covent Garden. Violets will also be seen in large quantities. These are kept in their separate colours, but most of the Pansies are of mixed varieties, although a few growers pack them in distinct sorts. Double Daisies, Primroses, Polyanthus, Aubrietias, Saxifragas, and other early-flowering hardy plants will also be seen as soon as the weather becomes warmer. Hardy plants of all kinds are much more extensively grown for market than formerly.

POT PLANTS.

It has been a trying time for the growers. Those who have good flowering plants have been afraid to send them on account of the cold weather. Azaleas are the most prominent subjects: they are very good this season. The pink varieties are most in demand. Plants of good white varieties are not so abundant as usual, but Niobe, which is one of the best of the second earlies, will soon be available. Apollo is the best scarlet variety. Vervaneana is a favourite pink kind, and there are several other good sorts grown. Azaleas are never referred to in the market as Rhododendrons. Ericas are well flowered, and as they withstand the cold better than most flowering plants they have sold well. Hyacinths are also valuable in this respect. Daffodils have also been good; the cut blooms and foliage last fresh for as long a period as those on the plants, consequently there is no great demand for these in pots. Tulips are now most extensively grown in boxes, from which they can be more readily transplanted than from pots.

On Tuesday I noticed some beautiful plants of Begonia Gloire de Lorraine: the flowers stood up well. Cinerarias are good, but most growers do not send them to market during cold or changeable weather. Genistas are fairly well flowered this season. Cyclamens vary; some are very good, but I have seen others that were of very inferior quality. Chinese Primulas are inferior to those seen in years gone by. The colours of the Continental strains may be brighter, but the plants have not the robust habit and large trusses of bloom of the old English type.

CUT FLOWERS.

Roses are still very scarce, and realise very high prices. Parma Violets were not procurable at seven o'clock on Tuesday morning, and all other French flowers were scarce. I was informed that there was not likely to be any fresh arrivals of flowers from France for some days to come, as they had to travel by a circuitous route. Carnations are still plentiful: higher prices are asked for the best white blooms. Liliun lancifolium is scarce, and good quality blooms cannot be bought under 5s. or 6s. per bunch of 12 blooms, whilst those cut singly, without stems, make from 4s. to 5s. per dozen blooms. L. lancifolium is also scarce, yet a few days may make a considerable difference in supplies. Tulips are a great feature, but they are very cheap, except the best double varieties. Daffodils are abundant; it is probable that supplies may fall off, for many growers have finished their first crop, and successive batches have not grown so fast as usual. When other flowers are scarce there is a larger demand for Lily-of-the-Valley. Gardenias are scarce. Eucharis blooms are procurable, and supplies may continue for some weeks. In Orchids good Odontoglossums, Cypripediums and Colognyes are procurable, but Cattleyas are very scarce. Chrysanthemums hold out well. Mme. Therese Panckouke appears to be the very best late white variety: the blooms may be a little wanting in substance, but it is a pure white, and, as far as I have seen, there is no other equal to it for late flowering, except a fine bronze sort, the name of which I have not been able to procure. Azaleas and other flowers with short stems do not advance in price much. Camellias for several seasons past have been very cheap. Blue Violets have been making 4s. per dozen bunches, which is a considerable advance on prices which prevailed a week ago. Double scarlet Pelargonium is improving in quality. Bouvardia President Cleveland cut with long stems makes far better prices than those ordinarily seen with short stems. A. H., Covent Garden, February 2, 1910.

SCHEDULES RECEIVED.

Chester Paxton Society's list of lectures for the session 1910, to be delivered in the Grosvenor Museum, Chester, on Saturdays, at 8 p.m.

Cardiff and County Horticultural Society's 22nd show, to be held on July 20, 21, in the Sophia Gardens and Field. Secretary, Mr. A. Maurice Bailey, 24, Duke Street, Cardiff.

National Sweet Pea Society's exhibition, to be held at the Royal Horticultural Hall, Vincent Square, on Tuesday and Wednesday, July 12, 13. Hon. secretary, Mr. Charles H. Curtis, Adelaide Road, Brentford, Middlesex.

Obituary.

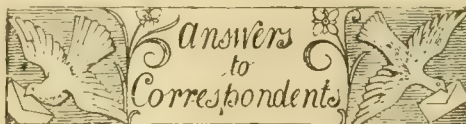
JONATHAN COCKS.—By the death of Mr. Jonathan Cocks, of Peterborough, on January 23, the nursery and seed world has lost a well-known and esteemed member. For some 20 years Mr. Cocks carried on a successful business as a seed merchant and florist at the Corn Exchange, Peterborough, and he was very nearly, if not quite, the oldest of the travellers in his particular line of business, being a familiar figure in all parts of England, Scotland and Wales as the representative of Messrs. Nutting and Sons, of Southwark Street, London, for whom he had travelled for the last 20 years. Mr. Cocks was born at Donnington, near Spalding, his father and grandfather having been connected with the seed trade. He was educated at the local Grammar School, and as a young man entered the employ of Messrs. Fisher, Son and Sibray, Ltd., Sheffield, being engaged at the Handsworth Nurseries. The deceased first commenced in business for himself at Peterborough in 1890, in Westgate, removing two years later to the corner of the Corn Exchange. Mr. Cocks leaves a widow, six sons, and two daughters.

RICHARD SHORE.—We regret to record the death of this gardener from heart failure on January 12. Mr. Shore, who was 73 years of age, was for more than 30 years gardener to Lord Fitzhardinge, Berkeley Castle, Gloucestershire. At an early age he commenced his gardening career at Drayton Manor, Devonshire. Subsequently he became head gardener to T. Aldare, Esq., Newton Barry, County Wexford. Later he was engaged at Babraham Hall, Cambridge. Mr. Shore left Babraham Hall to take up the post of head gardener to the Rev. James Hayworth, Henbury Hill, Westbury-on-Trym, Bristol, in whose service he remained for 14 years, removing from this place to Berkeley Castle. He leaves a widow, five sons, and one daughter.

JOHN WATKINS.—This well-known fruit-grower, whose death was announced recently, was proprietor of the Pomona Farm, Hereford. He grew no fewer than 800 varieties of Apples for testing purposes, and was considered one of the foremost authorities on hardy fruit culture and the cider-making industry. For several years past he had been engaged in compiling material for a descriptive work on Apples. In a private letter he stated that his list included more than 1,000 names of varieties, in addition to 1,800 synonyms. He had prepared outline drawings of a large number of the most popular sorts. Deceased was a well-known personality at the Hereford Fruit Show, and only last month contributed articles on fruit-growing and packing to the Hereford papers and our own columns. Recently he had resided at 6, Moorfield Place, Hereford.

PROFESSOR W. HILLHOUSE, M.A., M.Sc., F.L.S.—The death took place on the 27th ult. at Malvern Wells, of Professor W. Hillhouse, who, until about three months ago, occupied the chair of Botany at the University of Birmingham. Professor Hillhouse's connection with Birmingham commenced in the year 1882, when he took charge of the Botanical Department, Mason College, which was transferred to the Birmingham University. In 1883 he became a member of the committee of the Birmingham Botanical and Horticultural Society, and for a period of 14 years he filled the position of honorary secretary, which, owing to ill-health, he reluctantly resigned five years ago. Later, he was appointed chairman of the general committee, a position he held until last summer. During his term of office many improvements were carried out in the society's gardens. The Alpine garden was constructed, an improved water supply laid on in the grounds, the Water-Lily house rebuilt,

and the exhibition hall enlarged. For several years Professor Hillhouse was president of the Birmingham Gardeners' Mutual Improvement Society, at whose meetings he attended as often as his health and engagements permitted, and nearly always gave the opening address at each of the autumn and spring sessions. It was therefore a great blow to the society when, four years ago, ill-health compelled him to resign. Professor Hillhouse was chairman of the Midland Daffodil Society since its inception 11 years ago, and his resignation at the last annual general meeting was received with regret. He was elected a vice-president of the society. He also took a prominent part in the Midland Reafforestation Association, of which body he was chairman.



Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the *Publisher*; and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the *Editors*. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

CATTLEYA: W. P. B. The pseudo-bulbs sent are examples of what is known in gardens as "Cattleya disease." The condition is probably caused by deficient maturation, owing to the Orchid houses having some structural deficiency, or the weather being dull. In plants only slightly affected, cut off the diseased pseudo-bulbs and burn them. Keep the plants tolerably dry until growth is well advanced. Badly-affected plants should be burned at once. Ventilate freely in favourable weather.

CHARACTER: E. A. W. You might reasonably expect to obtain damages if you can prove the character to be false and malicious. Consult a solicitor.

DISEASED TULIPS: J. P. The injury is caused by the Tulip mould (*Botrytis parasitica*). The bulbs should be destroyed and the soil in which they have been grown should be treated with lime.

ESCALLONIA FLORIBUNDA: Correspondent, Stranraer. *E. montevidensis* is considered to be synonymous with *E. floribunda*, though it may show some slight varietal differences from the type. By an oversight, the flowers were described as pink on p. 53; but they are pure white.

GARDENER'S EXPENSES: Anxious. We gather from your letter that you made no arrangements as to railway fares and other expenses at the time of your engagement. As you have neglected to take this precaution, we fear you have little chance of recovering the amount.

INSECTS IN SPENT HOPS: J. D. A. The spent Hops are infested by a mite, *Rhizoglyphus agilis*. The specifics you have tried are useless. It is advisable to get rid of the Hops by burning, it being a difficult matter to destroy all the eggs of the mite, and reproduction is very rapid. Sulphur fumigation is the best remedy; it should be done at least twice, the second time 10 days after the first. Dusting with flowers of sulphur is also useful. Another plan is to spray with liver of sulphur and cold water. Place 1 ounce of liver of sulphur in 3 gallons of soft water, in which $\frac{1}{4}$ lb. of soft soap has been dissolved. The house should be fumigated with sulphur in any case.

"MIMOSA" (ACACIA): S. H. A. Your tree, being so large, must be cut back severely. If possible, leave some of the smaller side-shoots to assist the development of new growths. Failing this, it will be advisable to leave one of the main shoots till growth is well advanced on those you prune severely. The best time to do this is immediately after the tree has flowered. If it will not harm the other plants in your conservatory, increase the atmospheric temperature 10° for a few weeks, and syringe the plant freely on bright days.

Names of Flowers, Fruits, and Plants.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. Correspondents not answered in one issue are requested to be so good as to consult the following numbers.

FRUITS: OXON. There is no number with either fruit. The large Pear is *Beurré Diel*, and the smaller one *Easter Beurré*. As regards *Beurré Diel*, the condition is simply natural decay. This variety is at its best during November. Owing to the absence of sunshine, most fruits, and Pears in particular, have been very poor in quality. Some varieties of Pears decay from the outside, others commence to decay at the core.—*X. Y., Birkdale.* The Pears are too far advanced to be named with certainty. Send fresh specimens another season just when they are approaching ripeness.—*L. B.* 1, *Christie Pippin*; 2, *Winter Fulwood*; 3, *Graham*; 4, *Roi d'Angleterre*; 5, *Golden Reinette*; 6, *Wyken Pippin*; 7, *Bar-nack Beauty*; 8, *Claygate Pearmain*.—*C. B.* *Brabant Bellefleur*.

PLANTS: H. H. 1, Send flowers; 2, *Pilea muscosa* (Artillery plant); 3, *Euphorbia jacquiniæflora*; 4, *Selaginella Wildenovii*; 5, *Nerium Oleander*. The *Rhododendron* is badly affected by thrips, and seems to have been grown in an unsuitable house. Condensed moisture has probably caused the brown blotches on the leaves.—*E. E. C.* *Hardenbergia Comptoniana* figured as *Hardenbergia digitata* in *Botanical Register*, 1840, t. 60. The plant is sometimes known as *Kennedya* in gardens.—*W. H.* *Hoffmannia Ghiesbreghtii*; 2, *Cyperus laxus*; 3, *Angræcum eburneum*; 4, *Masdevallia polysticta*; 5, *Helxine Soleiroli*; 6, *Cupressus funebris*.

PEACHES FOR FORCING: L. T., Fuzedown. Two good Peaches for forcing are *Hale's Early* and *Bellegarde*; whilst of Nectarines, *Cardinal*, *Lord Napier*, and *Pineapple* (yellow flesh) may be recommended. The following Peaches generally succeed well out-of-doors: *Hale's Early*, *Stirling Castle*, *Bellegarde*, *Dymond*, *Peregrine*, *Nectarine Peach*, and *Princess of Wales*; and of Nectarines the best varieties are *Early Rivers*, *Lord Napier*, *Humboldt*, and *Pineapple*. The following varieties of Pears can be recommended: *Doyenne du Comice*, *Josephine de Malines*, *Passe Crassane*, *Winter Nelis*, *Easter Beurré* and *Olivier de Serres*. The best White Muscat Grape is *Muscat of Alexandria*, which should be planted at the warmer end of the house. A suitable black Grape to plant with this is *Appley Towers*; but this latter variety should not be planted at a less distance than 4 feet apart.

PEACH TREES: J. M. G. The roots are quite dead; but it is impossible to state the cause of death from an examination of the material received. We have failed to discover any evidence of fungus disease.

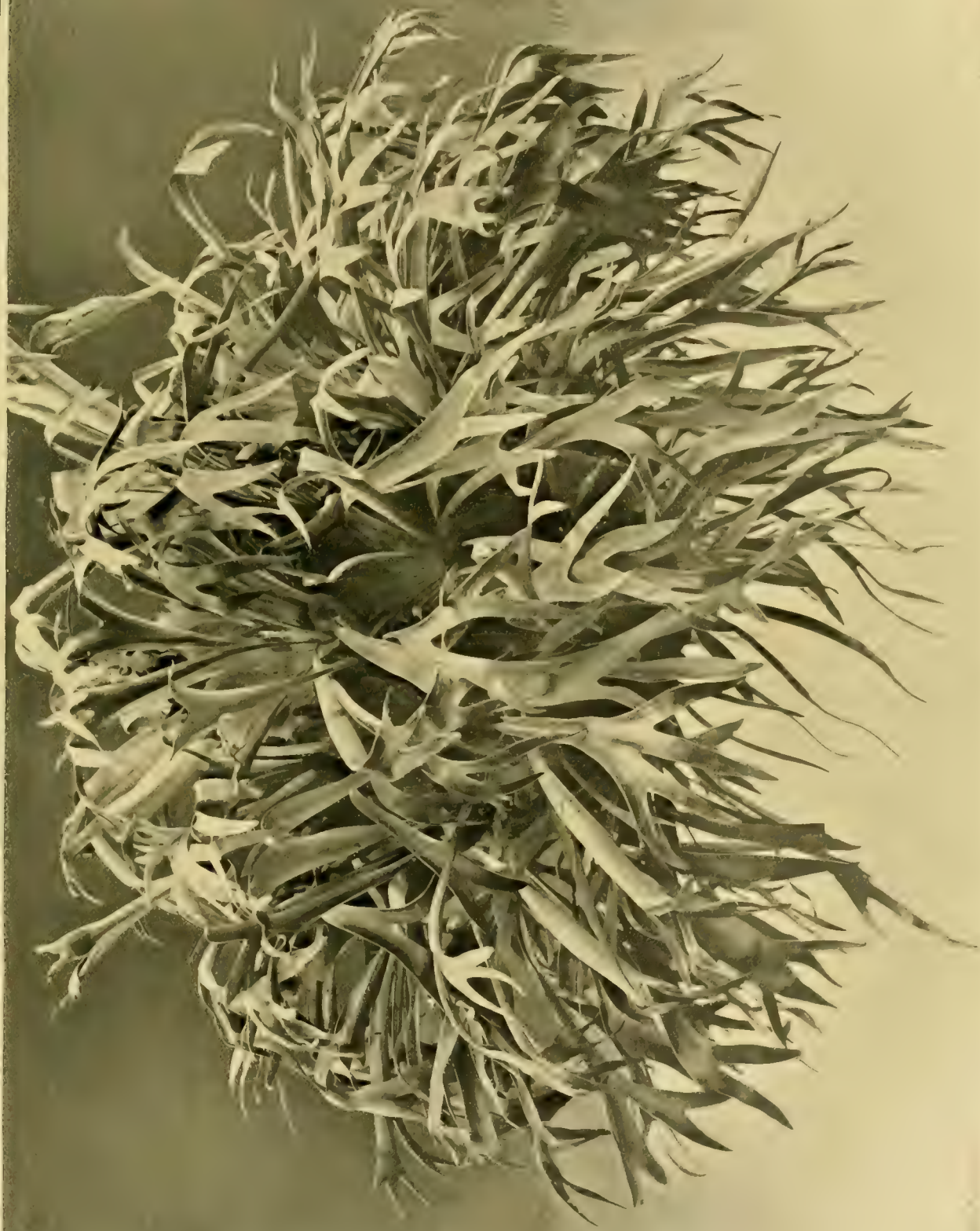
PLANT STAGES: F. N. W. Galvanised iron sheeting is suitable for plant stages, but it should be covered with a layer of fine cinders, gravel, shells, or some similar moisture-retaining material.

REMOVAL OF GOODS: E. A. W. In the absence of an agreement you cannot successfully claim expenses incurred in the removal of the furniture.

RICHARDIA (ARUM) WITH DOUBLE SPATHE: L. B. The abnormality is not uncommon; we frequently receive similar specimens.

ROSES DYING AT THE "COLLAR": W. S. The trouble is not due to either fungus or insect pests. It results from unequal work done by stock and scion. Sufficient food does not pass down to the root, which, in consequence, is starved. It is a common form of injury in the case of grafted Roses, more especially in the variety *Maréchal Neil*. No cure is known.

Communications Received.—*S. S.*, Budapest—*G. W.*—*L. B.*—*A. F.*—*Professor Balfour*—*K. L. D.*—*W. W. P.*—*Royal Botanic Society*—*H. M. V.*—*H. & S.*—*Cannon E.*—*F. M.*—*E. H. J.*—*B. G.*—*A. R.*—*S. J. D. G.*—*J. O. B.*—*A. C.*—*H. D.*—*H. W.*—*C. D. T.*—*J. D.*—*W. L.*, Texas—*E. F.*—*R. T.*—*J. R. J.*—*H. H.*—*W. H. W.*—*J. J. G.*—*L. F.*—*Sideroleum*—*Stanley N.*



PLATYCERIUM ALCICORNE, AFTER 30 YEARS' CULTIVATION IN MR. SIMPSON'S GARDEN AT FENNYMERE, EALING.

(DIAMETER OF PLANT, 5 FT.; HEIGHT, 4 FT.)



THE Gardeners' Chronicle

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TREES AND SHRUBS OF NEW ZEALAND.

THOUGH Japan has been ransacked for trees and shrubs suitable for introduction to English gardens, though temperate China has been drawn upon largely, and N. American species imported wholesale, New Zealand, with a climate approximating to ours and with a large number of interesting genera more or less limited to the Southern Hemisphere, has been practically neglected.

No doubt this is largely due to the lack of interest taken in the subject by those who live in that country. Beyond *Cordyline australis*, and tree-ferns, it is rare to see a native shrub or tree in a New Zealand garden. There, deciduous trees, Honeysuckles, Deutzias, Hawthorns, Weigelas, Rhododendrons and such plants, which have been under cultivation so long in Europe and N. America that they may be classed as "domesticated," are the rule. Yet a few years of experiment on similar lines would render New Zealand species amenable to cultural conditions, a result well worth the small amount of trouble it would entail.

That the native trees may be successfully and quickly grown is shown by a most interesting grove in the Auckland domain, where the Conifers, *Podocarpus ferrugineus* (Miro), *Podocarpus Totara*, *Agathis australis* (Kauri), *Phyllocladus trichomanoides* (Toatoa) and the weeping *Dacrydium cupressinum* (Rimu) are doing splendidly. These trees, as

Professor Thomas informed me, were planted about 30 years ago, and their progress is under the constant observation of a few, who, like himself, are not only keenly interested in the local flora, but have proved its value under cultivation. These trees range about 30 feet high, and flower and fruit profusely. The young Kauris are about 50 feet, and show the erect, tapering, pyramidal youth-form, with regular whorled branches, so familiar to me from the "Dakuas" (*Agathis vitiensis*) of Fiji. This grove, which was a thing of joy, is the only planting of its kind that I saw in the country.

The monotonous "domesticated" facies even obtains in the Botanical Gardens, where the least exacting stranger might reasonably expect to see indigenous trees and shrubs well grown.

Behind the Sugar Refinery near Devenport, Auckland, there are a few isolated, well-grown, young Toatoas, a peculiarly graceful tree in its youth-form, with its crisp, green foliage and whorled branches. The same may be said of the Rimu, which, in its early stage, is highly ornamental, and would make a very welcome change from the horticultural *Retinosporas* planted *ad nauseam* with us.

Podocarpus spicatus (Maitai) is a perfectly lovely tree, which I was lucky enough to see in "park form," that is to say, well isolated, in the Arthur Valley, Nelson. The foliage is dense, and the leaves short and soft in texture, with silver undersides which lighten the mysterious darkness of the much-branched crown. There were a number of beautiful Maitai there, the valley looking as if it had been cleared with the axe and not by fire. It was the only time I saw fine native trees *in situ*, uninjured, branching almost to the ground; growing in the Mixed Forest, they are naturally drawn up to an immense height, with remarkably small crowns.

The shrubby taxads are well seen in exposed, open, montane regions. Of these *Podocarpus nivalis* forms a dense, bushy growth from 2 to 8 feet high, with very dark green foliage.

Phyllocladus alpinus shows a charming, waxy sheen on the blue-green cladodes, and varies according to situation, from a shrub to small tree:—3-25 feet.

Dacrydium Bidwillii is also shrubby in habit, recalling *Cupressus orientalis*. The female is profusely covered with little green fruits on the tips of the branchlets. D. intermediate, which grows gregariously in restricted areas on the plains running up to Lakes Te Ano and Manapouri, shows the same neat habit and fruits abundantly at 5 feet. The seeds are black, with a fleshy, white aril round the base: an unexpected contrast which is particularly pleasing.

All these taxads, without exception, are diœcious, and so should be raised from seed; for, though their habit is peculiarly graceful and novel, compared with the well-worn Pines, *Cupressus*, and *Thuja*s which overload our gardens, the fruits are also effective and show interesting specific differences.

Of other trees, perhaps, the Proteaceous *Knightia excelsa* (*Rewa rewia*), with its fastigate habit, is the most conspicuous. It is common in woods throughout the North Island, and occurs in the northern portion of the South Island, and so might be hardy in the south of England. The flowers are handsome, red, in lateral, cauline racemes.

Laurelia novæ-zealandiæ is another, beautiful, forest tree, with white trunk, bright-green leaves, and racemes of typically Monimiaceous flowers. There are some fine examples in the Glen at Nelson.

Vitex lucens (*Puriri*), abundant about Auckland, 40-60 feet high, with dull-red flowers and handsome, 3-5 foliate leaves; *Dysoxylum spectabile* (*Kohekohe*), a Meliaceous species, with white, wax-like flowers in elongated racemes (cauline) and large, pinnate leaves, are two typical N. Island trees. So is the *Pohutukawa*, or Christmas tree (*Metrosideros tomentosa*), a beautiful species, abundant by the sea, with the undersides of the leaves, young wood and inflorescences covered with a thick, white tomentum. The flowers are dark crimson in terminal cymes. The other *Ratas* (*Metrosideros* sp.), though forming magnificent forest trees, generally begin life as epiphytes. *M. lucida* is an exception, and, ranging as it does from sea level to 3,500 feet throughout both islands, would probably do well with us.

Like the "Vuga" (*M. villosa*), which clothes the slopes of the Fijian mountains in early spring with its joyous crowns of blossoms, tinges distant hills and valleys red, and forms an object of veneration to white man and native alike, so the "Rata" in New Zealand plays a like rôle in summer. Its magnificence asserts itself, and in its abundance it cannot be overlooked. The flowering season also, coinciding with the Christmas vacation, which people often spend camping out—even large family parties indulging in this splendid form of enjoyment—makes it perhaps the one native tree which the impressionable age of childhood associates with the homeland.

Of other trees whose altitudinal range and geographical distribution leave no doubt as to their hardiness are the evergreen Beeches, with which, however, I have dealt in a previous article (see Vol. XLV., Third Series, p. 225). They would certainly repay wide introduction to British gardens. There is no comparison between their graceful beauty and the clumsy, thick outline and dense foliage, so unsuitable for our dull skies, of *Quercus Ilex*, which we plant so freely. I saw only one example of deciduous Beech under cultivation, and that was in a Christchurch garden. It contrasted charmingly with the usual, garden types, and, though only planted seven years previously, was of quite an imposing size.

Plagianthus betulinus is a tree of graceful habit and light foliage. The male is the more interesting form, the large, pendant panicles of small, green flowers being produced in immense profusion. I saw it isolated at Te Aroha, where it was associated with *Kahikatea*s and Cabbage trees in quite boggy areas.

Hoheria populnea is a small Malvaceous tree of rather fastigate habit, with white flowers in axillary panicles, abundantly displayed. It is figured in Kirk's *Forest Flora of New Zealand*, where the interesting differences of foliage between young and old plants is shown in detail. On an isolated specimen of this species near Nelson, known for 30 years, and pointed out to me by Mr. F. G. Gibbs, the lower branches still showed the small leaves and twisted, interlaced habit of the youth-form. For some years, he informed me, he had had this plant under observation and had noted its

* Pronounced "Vunga."

gradual evolution to the mature habit. Both this species and also *Plagianthus betulinus* would probably prove deciduous over here. *Elæocarpus dentatus* (Hinau) is a charming Tiliaceous tree with waxy, bell-like blossoms, white, with fringed petals, and evergreen foliage. But, for good habit, charm and profusion of flowers, I would give pride of place amongst the evergreen trees to the *Weinmannias*.

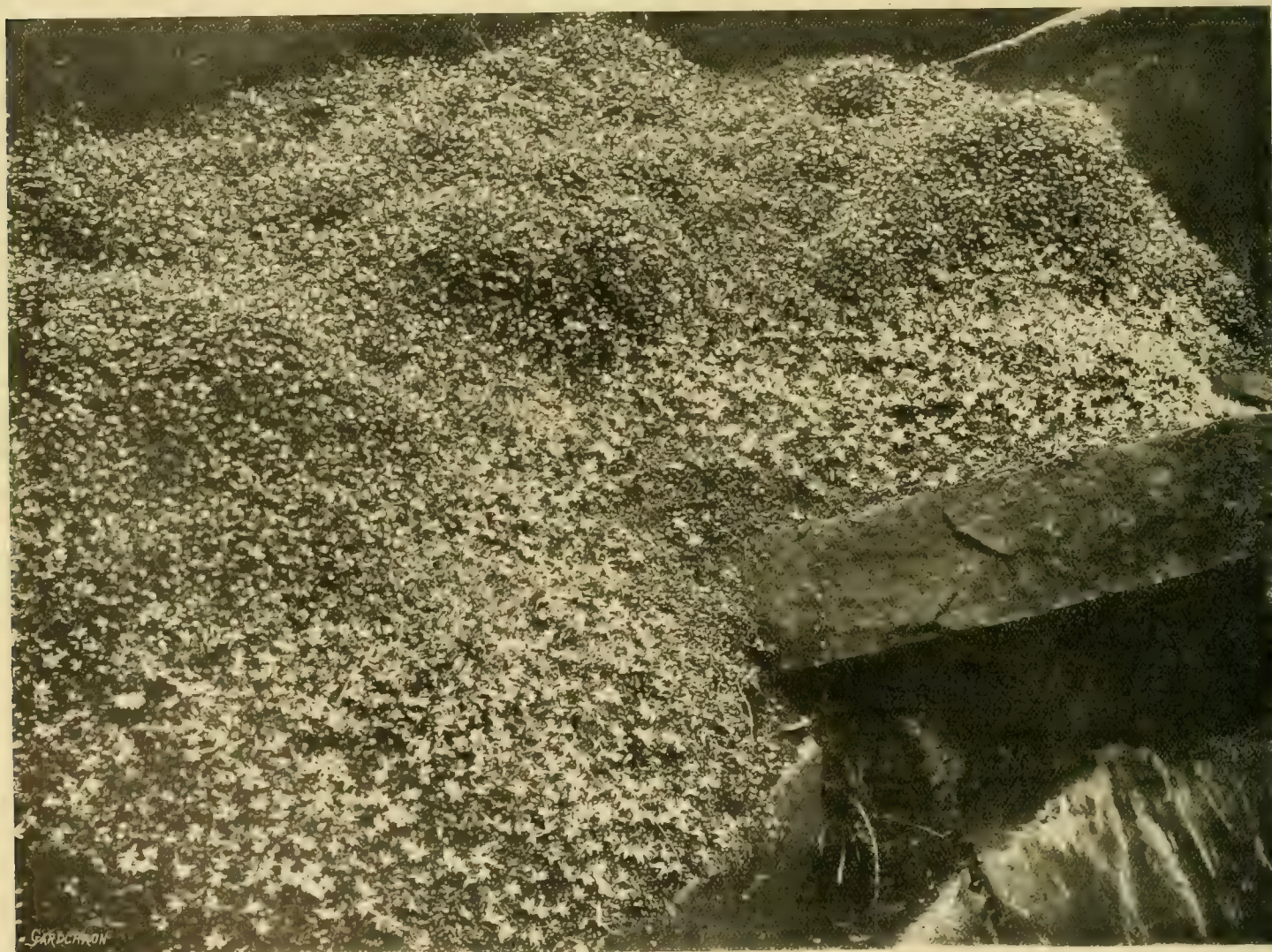
The two species, both endemic, are hardly to be distinguished from each other, and both show up well as shrubs flowering from 4 feet. Seeing these trees all through New Zealand recalled the delightful impression *W. affinis*, almost identical in appearance, made on me in Fiji, where it is very common. The flowers resemble those of *Astilbe*, the spicate racemes, 5 to 6 inches long, terminating all the branches.

Quintinia serrata has the same habit, but the leaves are lighter in colour and texture. *L. S. Gibbs*.

(To be continued.)

tions up to an elevation of 4,500, and is included by Mr. Cockayne amongst plants of bogs on Stewart Island. These indications have been generally followed in its cultivation in Britain, as the columns of the *Gardeners' Chronicle* record, but it would appear that, attuned as the plant is, like so many other bog plants, to physiological drought, it is of little moment to the plant how its water intake is made difficult, whether by actual absence of water (physical drought) or by a bar to absorption (physiological drought). This is a fact of practical importance in horticulture. In this we have an explanation of why in Edinburgh we get our best results when the plant is grown in dry, sandy soil in full sun. This point has already been noted in the pages of the *Gardeners' Chronicle* (Aug. 11, 1900, p. 110). What we find is this: in the position I have last mentioned, the prostrate stems form a close carpet on the soil, and every leaf axil sends up a short stemmed flower, making during the summer a perfect sheet of white blossom; if

but the flowers are covered by the copious vegetative growth. This is indeed merely an illustration of the variation in growth-form that accompanies slight environment changes, and which is exhibited to us by so many rock plants—by none more conspicuously than by the mossy *Saxifrages*. I must, however, get to the object of this writing. It is to bring to the notice of gardeners another member of the family of the *Campanulaceæ*, an ally of *Pratia angulata*, a plant of like habit and giving promise of becoming as great a favourite in our gardens. The plant is *Lobelia linnæoides*, Petrie, and the illustration (fig. 50) shows a small clump of it in the rock-garden at Edinburgh. It is a true *Lobelia*, though formerly named *Pratia* (the fruit of *Lobelia* is a capsule, that of *Pratia* a berry), from the mountains of the south island of New Zealand. Its specific name gives a clue to its habit. The small, slightly-fleshy leaves on the prostrate, purple stems are darker green on the upper surface than those of *Pratia angulata*, and



[From a photograph sent by Prof. Balfour.]

FIG. 49.—PRATIA ANGULATA IN EDINBURGH ROYAL BOTANIC GARDEN: FLOWERS WHITE.

PRATIA ANGULATA, Hook, F., AND LOBELIA LINNÆOIDES, PETRIE.

PRATIA ANGULATA (syn: *P. littoralis*; *Lobelia angulata* and *L. littoralis*), native of New Zealand, has been a favourite plant in gardens for some 80 years. It came to the Royal Botanic Garden, Edinburgh, in 1829, from Messrs. Young, nurserymen, Epsom, and was described by Professor Graham in the following year as *Lobelia rugulosa*. Nowhere has it thriven better in Britain than in Edinburgh. It is said to be common in the north and south islands of New Zealand, growing in damp situa-

the plant be grown where there is some shade or where the soil is heavier and moister, the stems arch from the soil, forming more or less of a cushion, grow freely, and the flowers, which are produced in fair abundance, are smothered in the greenery and make but little show. The photograph of a plant growing on the rockery here illustrates the features I have described (fig. 49). The front portion shows the plant exposed on a shallow layer of sand on rock slabs with abundant flower over the carpet of leaves; the back portion is on deeper, heavier soil, and growing under the influence of adjacent rocks and more in shade, it is beautiful as a picture of greenery,

have a purple under-side, which gives a glow to the appearance of the plant in the sun. The flower-stalks stand well up over the foliage, and the corolla, white above, has a purplish under-side, this colour running down the mid-rib of each petal. Flowering is profuse, and its period is as prolonged as that of *Pratia angulata*, lasting at Edinburgh from mid-June to mid-October. The plant, as it grows in Edinburgh, is not particular as to soil or exposure, is a free grower, and is readily propagated by division or by seeds. I do not know that it is in general cultivation in Britain, and it is a plant that should be in every rock-garden. *I. B. B.*

NEW OR NOTEWORTHY PLANTS.

IRIS MASLÆ.*

SOME years ago, when writing of *Iris Grant Duffii* and *Iris Aschersonii* (see *The Garden*, 1902, i., p. 288), the late Sir Michael Foster mentioned a purple-flowered relative of these species, which he had received from Herr Max Leichtlin some years previously under the name of *I. Maslæ*. So far, I have been unable to discover the authority for this name, and should be glad if anyone were able to throw any light upon its origin.

As far as I can ascertain, the plant is not at present in cultivation, but with the help of Foster's MS. notes and sketches, and of his dried specimen, and of another in the Herbarium at Kew, it is now possible to give a fairly full description of this interesting species. It was only lately that I found at Kew an undetermined species gathered by Sintenis in the course of his journey in the East in 1888 on the steppes near the village of Süverek, on the lower slopes of the Karadja Dag, a mountain which lies in the district of Diarbekr in northern Mesopotamia. A comparison of this specimen with Foster's material leaves no doubt that the plants are identical, and it was probably from Sintenis that Herr Leichtlin obtained his plants.

The leaves are somewhat rigid, about 18 inches long by $\frac{1}{4}$ inch wide, much overtopping the stem, which is only 5 to 6 inches long, and bears a sheathing leaf. The spathe valves are very narrow and pointed and no less than 6 inches in length, and yet the flower is borne well above them by reason of the lengthy pedicel of 5 inches. The ovary is of a rounded trigonal shape with a broad groove on each face. Of perianth tube there is practically none, for it is only $\frac{1}{4}$ inch in length. The falls ($2\frac{1}{2}$ inches by $\frac{1}{2}$ inch) have a long, narrow haft and a lanceolate blade. The haft bears along the centre about five parallel faint purplish veins and a few dots on a greenish ground, and along either side branching red-purple veins on yellowish-green. On the blade, of which the greater part is of a rich red-purple, there is a triangular signal patch of creamy-white veined with red-purple. The standards ($2\frac{1}{4}$ inches by $\frac{1}{2}$ inch) are oblanceolate, notched at the apex, the blade being of a paler red-purple than the falls, and the short haft veined and dotted with purple on a yellowish ground. The styles are narrow, with large purple crests, and the stigma conspicuously bilobed.

I. Maslæ comes nearest to *I. Aschersonii*, from which it differs chiefly in the shape of the segments. The haft of the fall is a narrow oblong, and not panduriform, as is that of *I. Aschersonii*; the standards are relatively much broader and distinctly oblanceolate in shape, while the styles are linear and not oval, as in *I. Aschersonii*, and the crests much larger.

The colour, of course, is wholly different, though this alone would seem to be no good specific difference, for there appears to be some intimate chemical connection between the yellow and the purple colouring so often found in Irises, a connection so intimate that a slight change in soil or climate is sufficient to produce purple, where yellow occurred in the previous season. This must not be taken to mean that Irises ever produce yellow flowers one year and flowers that are wholly purple the next; but that, when a species is found producing pale yellow flowers, we may expect that, sooner or later, purple forms will appear.

Taking all these differences into account, as well as the more eastern habitat, for *I. Aschersonii* is known only in the neighbourhood of Adana, it seems best to consider this *Iris* as a distinct species. *W. R. Dykes, Charterhouse, Godalming.*

THE ROSARY.

CULTURAL NOTES FOR FEBRUARY.

IN the vicinity of towns and smoky districts the spring planting of Roses is advisable, as the winter fogs and murky atmosphere will be over and the new growths will not suffer so much in consequence. Standard Roses are, as a rule, very short-lived, and require to be constantly renewed; therefore, it is best to confine the selection to dwarf plants. They may be chosen from the old Provence, Moss, Hybrid Bourbon, Hybrid China, Rugosa, some hardy kinds of Hybrid and Perpetuals, and hardy climbers. Before planting, the old soil should be removed, and replaced with two-thirds good loam, and the remainder of equal parts of $\frac{1}{2}$ -inch bones and road grit or sharp sand, well worked together. The plants should be obtained from some reliable provincial grower, and be hardy and vigorous.

All hardy climbing Roses on pillars, arches and pergolas may be thinned out, tied, and trained in as required, but shortening of the other shoots should be left until March.

Late-planted dwarf Roses with strong, ripened shoots may be laid down and pegged in the same

for the hot-bed, and should be turned over in a heap two or three times to become well fermented before the bed is made up. If properly made, it should provide a regular and lasting heat of 70° and 75° for a month. The bed should not be less than 4 feet high at the back and 3 feet 6 inches in front. The material must be well trodden down. The length and width of the bed will be 13 feet 6 inches by 9 feet 6 inches. A two-light box frame measuring 12 feet by 8 feet will be found a useful and portable size to place on the bed: this will allow 18 inches all round the frame for linings when the heat is likely to decline. When the frame is in position, place in it a mixture several inches deep of fine ashes and fibre as plunging material for the cuttings.

The mild, wet weather has caused active growth amongst all classes of Roses; however, providing there is a good reserve of dormant basal eyes available at pruning time, there should not be very much harm done, except to cause the flowering season to be later. The earliest-established, forced Roses will soon be showing their flower-buds. The same temperature as last month, namely, 55°, will be sufficient, as the plants will now have considerable help from the sunshine. A humid atmosphere



[From a photograph sent by Prof. Balfour.]

FIG. 50.—LOBELIA LINNÆOIDES ON THE ROCK GARDEN IN EDINBURGH ROYAL BOTANIC GARDEN: FLOWERS WHITE, PURPLISH UNDERNEATH.

(See p. 98.)

way as those planted in October. The shoots can be protected from severe weather, and will give an abundance of blooms over a long period. Where the beds have been beaten down by heavy rains, point the ground between the plants lightly with a fork to sweeten and aerate the soil without disturbing the roots. This can be followed by placing a fresh surface mulch of manure.

Tread firmly the ground about Standard Briars and other stocks that have become loosened by the frost. On or about the 25th of this month, when the wood of the forced Roses is firmer, propagation by cuttings may be begun simultaneously with or subsequent upon herbaceous grafting. Hot-beds may be made up on the above date in readiness for the rooting of the cuttings early in March. Horse manure with plenty of short litter is the best material

and an increase of top ventilation may be given on bright mornings, but close the house early in the afternoon. Fumigate or vaporize the house on the first appearance of aphid or red-spider. If mildew appear, syringe the plants with a hot solution of soft soap, or paste the hot-water pipes with "sulphur vivum" and soft soap dissolved in water. Liquid and artificial manures may be applied as directed last month to the growing plants, but when the flower-buds begin to open the use of stimulants must be discontinued.

The autumn-potted plants in the cold-house will now be breaking into growth. The more forward may be brought into the cool end of the forcing house, which usually has a division for that purpose. Keep the plants for a short time rather drier at the root, but syringe them occasionally.

* *IRIS MASLÆ* (Apogon).—*Rhizoma* (?) : *folia* linearia, subrigida, sesquipedalia; *scapus simplex*, brevis; *spathe* uniflora, *valvis* longissimis, herbaceis, angustis, acuminatis; *pedicellus* 5 poll. longus; *ovarium* trigonum, trisulcatum; *lobus* subnullus; *segmenta exteriora* lanceolata, ungue oblongo, saturate purpurea; *interiora* emarginata, oblanceolata, unguiculata pallide purpurea; *stylis* oblongis, angustis, cristis magnis.

Dormant grafting will soon be finished, and the earliest plants grafted during the autumn will be ready for repotting into 4½-inch and 5-inch pots. A suitable compost is yellow loam, decayed manure, and sharp sand. Keep the union well down under the soil, and pot firmly and carefully. Stake the plants, and keep them well up to the light. An occasional syringing overhead should be given to keep down insects. The repotting should be continued as the plants require a shift, which will be when they have made from four to six leaves. With a good supply of stocks and scions available, herbaceous grafting should be in full progress. The grafted plants may occupy the spaces lately occupied by those grafted in winter. These will bear a more humid atmosphere, but the foliage should be allowed to dry for a few hours daily by opening the sashes during the morning. Roses planted out in borders should now be breaking freely into growth after a long rest. The temperature can remain about 50° at night time, rising during the day with the sun's heat from 55° to 65°, but in dull and severe weather it should not exceed 55°. Ventilation must be given judiciously; promote a good circulation of air, and allow a little to enter at night time near the hot-water pipes. When watering is necessary, give a thorough soaking, and afterwards mulch with short, fermented manure. *J. D. G.*

TREES AND SHRUBS.

THE CATALPAS.

THE hardy species of *Catalpa* are natives of North America, China, and Japan. They usually attain a height of 20 feet to 30 feet in this country, and have broad, spreading heads of about the same diameter. The leaves are large, bold and striking in outline, and give the trees a distinct and handsome appearance even when not in flower. A deep and rather moist soil suits them best, whether it is light or heavy land being immaterial so long as a deep rooting medium and plenty of moisture are available. The rate of growth is fairly rapid, especially with young trees on good ground, but flowers are not produced as a rule until the trees have attained a certain size and age. The branches of *Catalpa* never form a terminal bud, so that young trees require training and staking to keep them to a single lead, but a stem 6 feet or more in height can soon be obtained. Propagation is effected both by stem- and root-cuttings. Stem-cuttings should be made from the young growths as soon as they are moderately firm. The cuttings should be placed in gentle bottom heat in a close frame, care being taken that they are not kept too moist or they will soon rot. Root-cuttings are obtained in the autumn just before the fall of the leaf, and consist of some of the larger roots of the thickness of a finger and upwards. They should be cut into lengths of about 6 inches, cutting the two ends differently so as to readily distinguish them. Then they should be put in a sheltered position out-of-doors, the top of the cutting, when planted, being level with, or just below, the surface of the soil.

Though the *Catalpas* will probably never have any value in this country as timber trees, yet in the United States the native species have a certain economic value as timber. The wood is soft and coarse-grained, but is capable of resisting decay when in the ground, so that it is used for fence-posts, &c. As a proof of this, Professor Sargent, in the *Silva of North America*, states that after the earthquake of 1811 in Missouri, a great many acres of land sank and became submerged, together with the trees growing on it. When excavations were made on the spot in 1878, the trunks of the *Catalpas* were found to be perfectly sound and good, while all the other trees had rotted and practically disappeared.

C. BIGNONIODES (*C. SYRINGEFOLIA*), INDIAN BEAN.—This species is a native of the South United States, and is stated by Loudon to have

been first introduced to this country in 1726. It forms a tree 30 feet or so in height, with a broad, spreading head as much, or more, in diameter. The leaves are broadly ovate, 6 inches in length by about 5 inches wide, smooth on the upper surface and downy beneath. On young, vigorous trees they are sometimes twice the size, and pubescent on both surfaces. The flowers open in July and early August, and are borne in large, erect, terminal panicles. The individual flowers are about 2 inches across, and are broadly tubular with a crimped or frilled edge; the colour is creamy white, with clusters of purple spots and yellowish blotches. The fruits somewhat resemble a French Bean and are upwards of a foot in length, giving the tree a singular appearance when they are produced in any quantity. The seeds rarely, if ever, ripen in any country. The variety *aurea* has golden leaves; *purpurea* has foliage of a purplish hue, and *nana* is a dwarf, rounded form, which never flowers, and is only of value as a curiosity.

C. BUNGEI is a native of China, and it is doubtful if there are many plants in this

purple spots. This species is often confounded with *C. bignonioides*, but is quite distinct from it.

C. KÆMPFERI is a native of China and Japan, and has the merit of being the hardiest of the genus, though the least ornamental. It forms a tree about 20 feet high, with a rounded, spreading head of about the same diameter. The ovate leaves are usually lobed, dull green, woolly on both surfaces when young, but becoming glabrous above when older. The flowers appear in comparatively small panicles, and are about an inch in diameter, dull yellow in colour, with reddish-brown spots.

C. CORDIFOLIA × *KÆMPFERI*.—This is a hybrid raised by Mr. J. C. Teas in his garden in Indiana, U.S.A., about 30 years ago. It is a strong-growing, vigorous plant, and from the American description of it is probably the best of the genus. The flowers are produced in large, terminal panicles, and are white, marked with purple spots, and blotched with yellow. *J. Clark.*

A TALL ANTIRRHINUM.

It may be interesting to readers of the *Gardeners' Chronicle* to see an illustration (see fig. 51) of an *Antirrhinum majus* that probably surpasses in height all known forms of this attractive border plant.

The tallest forms that appear to be known are comprised under the name of *A. majus procerrum*, and reach a height of about 90 cm. (3 feet). The plant now illustrated attained, in the Botanical Garden at Upsala, the height of 3 m. 45 c.m., i.e., about 10 feet. It was raised from seeds by a labourer in that town, who presented it to the Botanical Garden. It was raised in the year 1908, and, as the plant had reached the height of 1 m. 25 c.m., it was planted in a pot, and during the winter grown in the conservatory. In the spring of 1909 it was planted out in the open ground, and has since reached this astonishing height. Two cuttings taken in the spring of 1909 are now about 1 m. high.

This plant will, perhaps, be the parent to quite a new class of giant Snapdragons, as I have already collected some seeds from it. I also intend to propagate it by cuttings which grow readily.

The flowers are of a deep purple-red colour, without any yellow, and they are uncommonly large. *Ivan Ortendahl, Curator.*

PLANT NOTE.

ACANTHUS MONTANUS.

Most members of the Bear's Breech family are hardy in this country, but this particular species needs to be grown in a warm house. It is a native of tropical West Africa, and was introduced over 40 years ago. Like many other plants, it would appear to have almost dropped out of cultivation, till, at the last meeting of the Royal Horticultural Society, 1908, it was exhibited by Messrs. Veitch and awarded a First-class Certificate. At the first meeting of this year it also figured in Messrs. Veitch's group, so that it can be looked upon as a plant that flowers in the depth of winter. This *Acanthus* forms a stout, erect stem of a half-woody character. It is furnished with long, deeply-cut leaves, marked more or less with a yellowish veining. The flowers borne in terminal spikes much suggest those of the other members of the family. They are in colour white or nearly so, but are subtended and partially hidden by bracts heavily veined with purple, so that at a little distance the blossoms appear to be of that hue. This *Acanthus* is a plant of easy culture, and can be readily propagated by means of cuttings. When the certificate was awarded it was a comparatively unknown plant, but since then I have met with it in two or three places. *W.*



FIG. 51.—ANTIRRHINUM MAJUS GROWING IN THE BOTANICAL GARDEN, UPSALA.

(Height 10 feet.)

country, the majority met with under this name being either *C. Kæmpferi* or *C. bignonioides* var. *nana*. In its native habitat it makes a tree 30 feet or so in height, with triangular-shaped leaves, sometimes lobed, and about 6 inches long by 4 inches wide. The flowers are borne in large panicles, and are individually about 1½ inch across, of a white colour, spotted with purple.

C. CORDIFOLIA (*C. SPECIOSA*), THE WESTERN CATALPA.—This species is a native of the United States, its habitat being to the north-west of *C. bignonioides*, where the winters are more severe, so that it is somewhat the hardier of the two. It is a handsome tree, reaching a height of 40 feet or more, with leaves about 8 inches long by 6 inches wide, terminating each in a long, acuminate point. The flowers open early in July, and are borne in terminal panicles, the individual blossoms being a little over 2 inches in diameter, pure white, with yellow blotches and a few

THE SCHOOL GARDEN.

SINCE the inception of the school garden movement much has been written on the subject and much remains to be written. This is not to be wondered at, since few subjects which have found a place in the schemes of our primary schools have proved so useful in practice or so pliable in theory as this educational application of horticulture.

To the layman it is probable that the curriculum of the elementary school has little attraction. Possibly, if he be of mature years, there may be little of pleasure in the memory which he retains of his school days. But, to-day, the child of the primary school lives in an atmosphere freed from the rigours and the dullness of the old-time teaching. Years of progression, of experiment, and even of reversion, have evolved a curriculum at once diverse in nature, and yet as attractive to the young as it is educationally valuable. Of modern additions to the curriculum, the work in the school garden is one of the most interesting.

From the standpoint of the outsider, the school garden may appear to be nothing more than a phase of practical horticulture. Up to a certain point this is true, yet such an idea fails to represent adequately the true significance of the subject. Where this conception of the work is held by the instructor, much of the educational possibility of the study is lost. It is, however, very difficult to define exactly the significance of school gardening in the scheme of education, since the subject is of such a versatile nature that its extensions and developments ramify deeply into other studies. It is not gardening pure and simple. It is not merely a manual subject which rests content with the perfection of working practice. Its essential and unique value lies in this, that it provides a means of linking up the class-room studies with outdoor observations.

In the boys' garden we may observe a phase of horticultural instruction with a defined aim, conducted along definite and considered lines. This gardening—tentative as it necessarily must be—is unique in that it is the common ground whereon the horticulturist and educationist meet. The result has been a natural one; for each has learned something from the other. The educationist needs facts to marshal into logical array, to present lucidly and to explain truthfully. These facts abound in the garden and, in the judicious selection of these, the expert horticulturist is his guide.

It is well known to all who have had any opportunity of snatching a glimpse of modern school procedure that a very important advance has been made in the last decade by the development of Nature teaching. For the want of a more expressive title it is called Nature study. By some who are not closely familiar with the aims and methods of this subject, it is regarded as a fad. In fact, in its early days there was much which might have merited such a condemnation. It is, however, purged of the ridicule which inefficient teaching and injudicious choice of subject earned for it, and to-day Nature study is recognised as a subject of great interest and possibilities. It is in the school garden, where these educational possibilities are turned to account, that the young gardener is led to discover the reasons which underlie his practice. He is taught to trace for himself the causes which bring about the effects observed in his small plot, and these, as every gardener knows, are sufficiently numerous to provide a wealth of material for thought.

It would seem hardly credible that the school-boy's garden—insignificant as it may appear when measured superficially—could possibly yield the educational benefits claimed for it. This is perhaps due to the fact that we older gardeners survey the garden generally with a dietetic bias. We look forward to the harvesting of our sowings, and also perhaps a little beyond, to its

consumption at the table. Such a view of things rarely presents itself to the boy gardener, although he may anticipate with pardonable pride the carrying home of specimens of his cultivation for paternal congratulation. But, in the first place, his plot, small as it is, is an experimental station which, with infallible fidelity, will represent the value of his work. The plot is represented to him by his instructor as a laboratory in which he will conduct, within specified limits, his own experiments; and he knows full well from the outset that the plants grown therein will themselves record the wisdom of his own procedure. He must know essentially *what* should be done and *why* the several operations must be carried out. Thus he digs and trenches the soil; thus he sows seeds and transplants seedlings. Thus he tends his crops generally with observation carefully directed towards the results of his work and with mind alert to connect cause with effect. And more than this: he is forearmed in the class-room, where experiments have shown to him the more important facts of the relationship of the plant to the soil and the air. He has, in fact, apprehended that gardening is no haphazard venture, but one which depends for success on both steady work and skilful application of wide and varied knowledge. *W. Francis Rankin.*

NOTICES OF BOOKS.

THE BOOK OF FLOWERS.*

THIS title is barely appropriate to a volume of such a varied character as that before us. The flowers treated of are most of them indigenous to Great Britain, and around each is clustered something about its folk-lore, its many names, its medicinal properties, real or imaginary, whilst every now and again there are pages with charms, recipes, and prescriptions, and in every chapter there are verses relating to flowers. For these reasons the text is fascinating, especially to those who possess a taste for literary fare of the kind. Perhaps the subject most pleasantly treated of all is the Shamrock, the evolution and history of which is given in detail; but the remarks on Lavender and its uses will be equally interesting to many people, and, as might be expected, the portion appropriated by the Rose is filled with "sweetness long drawn out."

Readers are warned in the introduction that the book "makes no pretence at all to completeness or to scientific knowledge or accuracy," and the reader who turns to its pages hoping that the authors have exaggerated their failings will discover that they are strictly honest. Incompleteness was to be looked for, but accuracy is desirable on all occasions. Many of the plants are confused in an extraordinary manner. *Chelidonium majus*, for instance, has affiliated to it under Scots or English names, *Caltha palustris* and *Euphorbia Helioscopia*! Common names are misapplied in many cases. Allan Ramsay's "birns," which are the burnt stems of Heather, being referred to the Bardock. "Harlock," in one of Drayton's poems, is emended to "Charlock," while lovers of the contemplative Izaak will find a couplet of a well-known song and its author treated thus: "Master Danvers sang the flower by a different name:

'Purple Narcissus like the morning rays,
Pale garden grass and azure Culver keys.'"

And so on all through the volume. Complete accuracy in writing of flowers from the standpoint adopted by the authors is, perhaps, not always possible. At the same time, it is not too much to expect writers on this difficult subject to take every precaution to secure a near approach to it. In this instance, it is the one drawback to an otherwise very delightful book. *B.*

* *The Book of Flowers*, by Katherine Pynan and Frances Maitland. (London: Smith, Elder & Co.) 6s.

STREET TREES.

THE raising of trees for street planting should be undertaken by every town authority, for in most boroughs there are waste lands which could be utilised for the purpose. For example, the places where road-sweepings are tipped might be so employed, and the "tip," which has hitherto been one of the most unsightly places in a town, could be made attractive. Trees, when grown in the neighbourhood where they are to be permanently planted, may be transferred, even when of a large size, with very little check. They are not out of the ground for long, and usually a good bulk of soil may be retained about the roots, especially if a transplanting trolley is used. The young trees require very little attention while growing in the nursery: all that is necessary is to keep them properly pruned and cleaned, and transplant them every second year. If the town does not possess a garden staff the work may be given to the cemetery superintendent, or a local nurseryman may be commissioned to prepare the trees. Too often street trees are neglected at the start, never pruned, transplanted, nor matched. In a new street near to the Strand some of the trees are about 9 feet high, the next 20 feet, the next 15 feet, and so on—a very irregular row, and almost all the trees without a leading shoot. These trees will, I presume, be allowed to grow as they may until a branch becomes a menace to traffic, when it will be pruned. Who has not seen these prunings? In many cases in this country an unskilled labourer with a saw, acting under the direction of an engineer, is responsible for the work. It results in a row of horribly mutilated trees, with hundreds of saw-wounds, through which disease-pro-

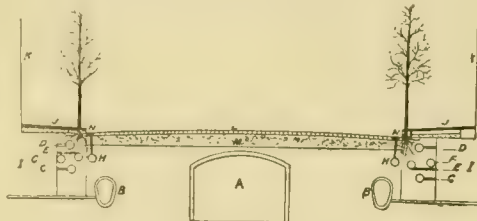


FIG. 52.—HINDRANCES TO STREET TREES.

(A section of Kingsway, London.)

- | | | | |
|-----|--------------------|-----|-----------------------|
| A | Subway for trams. | H H | Surface water drains. |
| B B | Sewers. | I I | Cellars. |
| C | Gas mains. | J J | Asphalt path. |
| D D | Water mains. | K K | Buildings. |
| E | Electric cables. | L | Wood paving. |
| F | Telephone conduit. | M | Concrete. |
| G | Telegraph conduit. | N N | Gulleys. |

ducing parasites gain ready access to the living tissues. If, notwithstanding, the branch keeps healthy, it throws out a crowd of shoots, all of which are allowed to remain, and as soon as one good branch has emerged from the chaos it is time for the engineer to appear again. It is possible to maintain street trees in a perfect shape with very little expense. It is asserted by some that formal treatment of street trees is unnatural, and that systematic pruning and training are against the laws of Nature. The cultivation of trees in streets is altogether unnatural, for the streets themselves are unnatural.

Street trees must be selected with three objects in view. They must suit the positions which they are to occupy, the positions they occupy must suit them, and they must be beautiful, shade-giving, and easy of culture. A section of a London street (see fig. 52) shows how different are the conditions from those that obtain in a park or garden. The entire surface of the road is paved, thus shutting out air and moisture from the soil. There can be no annual mulching and forking about the roots except beneath the small gratings where the trees are planted. The surface alone presents a tremendous problem to the town planter, but the works below ground are even more discouraging, for there may be drains, sewers, gas mains, water mains, electric mains, telegraph-ways, and a host of other things which make the ground a network of pipes and cement-cased channels. *Pem.*

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DONOHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Westwood, Yorkshire.

Allamanda.—The plants, having completed their season of rest, should have the old soil removed from their roots prior to repotting them. If the rooting medium is in a dust-dry condition, it will be better, before disturbing it, to place the pots in a tank of tepid water and afterwards allow it to drain. If the shoots are not already pruned, as advised in a previous Calendar, the growth should be cut back into the hard wood and all the weak and undesirable shoots removed. In repotting, use clean pots, and place plenty of material in the bottom for drainage purposes. Select receptacles rather smaller than those they have previously occupied, as this will allow them to be shifted into bigger pots later in the season. The *Allamanda* thrives in fibrous yellow loam mixed with charcoal and mortar rubble. Pot firmly, as this is necessary to secure short-jointed, solid shoots.

Richardia.—*R. africana*, generally known as *Calla* in gardens, being a bog or semi-aquatic species, needs an abundance of water during the period of growth. It is possible to have plants in bloom for a very long period, for some may be forced in a temperature of 55° to 60° to flower early in January, and a succession can be kept up until late in the summer. When the pots have become filled with roots, and the plants are growing quickly, diluted liquid manure should be applied to the roots at every alternate watering. The yellow-spathed *Richardias* or *Arums* include *R. Elliottiana*, *Pentlandii*, and *Taylori*. These choice flowers are most esteemed during the London season, and, fortunately, the flowers can be packed in boxes, with a knowledge that they will last for a long period after the stems have been placed in water. My system of cultivation for these yellow *Callas* is to place the tubers in shallow pans or boxes. The atmosphere is kept moist and warm, and water is applied to the tubers sparingly, until they have become well rooted; but as soon as the roots can cling to the compost, they are removed and potted into pots of suitable sizes, according to the size and strength of each tuber. Tubers will sometimes flower in the second year from seed; but they are always more satisfactory in the third year. Propagation may also be effected by potting up the off-sets, which are produced in abundance; these develop into flowering tubers more quickly than seedlings.

Seed-sowing.—A start may now be made by raising plants that will flower in autumn, but require a long season of growth. Such plants include *Gloxinias*, *Saintpaulia ionantha*, tuberous-rooted *Begonias*, and hybrid *Streptocarpuses*. Select shallow pans or clean pots, and place some broken crocks at the base for drainage. Over the crocks provide a layer of rough material, and fill the receptacles to within half an inch of the rim with a light, porous soil, making this moderately firm with the fingers and smoothing over the surface. The compost may consist of finely-sifted loam, peat, Oak leaf-mould, and sand in equal proportions. Let it be thoroughly well watered in the pots, taking care not to disturb the surface of the soil, and, after the pots have been allowed to drain for a few hours, the seed may be sown thinly and regularly over the surface. Place pieces of glass over each receptacle, and plunge them in a moderately warm hot-bed. They will require to be carefully shaded from sudden outbursts of sunshine. When germination has taken place, the glass should be tilted, and finally it must be removed, and the seedlings gradually hardened to exposure to the light, when they may be afforded a position near the glass.

Chrysanthemums.—Those that have already rooted may be placed into separate frames as soon as the weather will permit them to be removed, as they need more ventilation during favourable weather. The cuttings that were rooted first may now be potted, before the roots get entangled. For this first potting a mixture of loam and Oak leaf-mould is suitable. This should be made moderately firm round the roots with the fingers, and a small stake should be applied

to each plant to secure it from injury. After the potting process, keep the frames closed for a few days, and, if it is thought necessary, a light shade may be afforded the plants until the roots have recovered. Keep them well exposed to the light, and near to the glass, and do not use artificial heat unless it is to prevent frost. On the slightest appearance of aphides, the plants may be dusted with tobacco powder, or treated with some approved insecticide.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Training Peaches and Nectarines.—Assuming that these trees have been detached from walls in order to retard the flower period, they may now be pruned. The pruning will be a slight operation if the trees were given proper attention during last spring and summer, in regard to disbudding the shoots and pinching the lateral growths. The operator may now proceed to remove any weak branches or shoots that can be spared, as this will have the effect of preventing any overcrowding. If the trees are infested with scale or any insect pest, let them be given a thorough washing with some effective dressing. This can be best applied by means of a half-worn painter's brush, which must be well cleaned of all paint by soaking it in turpentine and working the paint out on a plain board. In applying the insecticide to the tree, the brush must be worked in an upward direction, so that the buds will not be injured. If the trees are perfectly clean, they may be given a syringing after the training is finished with a solution of soft soap and sulphur, using 6 ounces of soap and 4 ounces of flowers of sulphur to each 3 gallons of water. First dissolve the soap in hot water before adding the sulphur, and let the mixture be well stirred whilst applying it to the trees. In carrying out the training, first tie in the main branches, disposing them evenly over the allotted space, so as to give the tree a well-balanced appearance; then train in the shoots at equal distances between the branches at about 5 to 8 inches apart. Tanned fillis is the best material for fastening the branches, and well-twisted raffia for securing the shoots; but care must always be taken not to make any of the ties too tight. If the borders require a top-dressing, they may be treated in the manner described for wall trees in the Calendar printed in the issue for January 8. Peach borders should be examined frequently in order to ascertain if the roots are sufficiently moist, it being a fact that, in numerous cases, the trees suffer from neglect in this matter. I strongly recommend that Kirk's border tester (see fig. in *Gardeners' Chronicle*, January 18, 1908) should be used for this purpose. Let the cultivator bear in mind the walls absorb much moisture, whilst they also prevent the rains having their full effect upon the borders.

Relabelling trees.—The relabelling of trees may be undertaken during rough weather, when other outside work cannot be proceeded with satisfactorily. Let the necessary labels be got in readiness for all recently-planted trees and shrubs, and for any others where the labels need to be renewed.

The fruit store.—Remove all the decayed fruits from the fruit-room, and keep everything in the store as clean as possible. Some varieties of Apples are shrivelling badly with us this season, which is probably owing to imperfect maturation during last season, which was comparatively dull and sunless.

THE ORCHID HOUSES.

By H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Cool growing Cypripediums.—For a winter display there are few Orchids more pretty and effective than the cooler-growing species of *Cypripedium*, especially the well-known *C. insignis* and its many distinct varieties, among which the following are always appreciated:—Harefield Hall variety, *Sanderæ*, *Sanderianum*, *Laura Kimball*, *Gwynedd*, *punctatum violaceum*, *Amy Moore*, and *Dorothy*. These and the less-distinguished varieties are great favourites, for they are not only very beautiful, but are capable

of lasting in a fresh condition for two or three months. The plants possess vigorous constitutions, and will thrive in almost any house where frost is excluded. The following species should also be grown where sufficient space can be afforded for their culture:—*C. Spicerianum*, *C. Charlesworthii*, *C. Fairrieanum*, *C. villosum*, and *C. Boxallii*. Among the cooler-growing *Cypripedium* hybrids which have similar merits are:—*C. Lceanum*, *C. L. giganteum*, *C. L. Clinkerberry-anum*, *C. L. Prospero*, *C. Hera*, *C. Euryades*, *C. Actæus*, *C. A. Chardwarensis*, *C. A. Langleyense*, *C. Alcibiades*, *C. aureum*, *C. a. surprise*, *C. a. adippe*, *C. a. virginale*, *C. Beekmannii*, *C. vexillarium*, *C. Hitchense*, *C. Sallieri* var. *Hyeatum*, *C. Minos*, and *C. Tityus*. Any of these plants—and others of the same category—as they pass out of flower, and which may have become pot-bound, should be repotted; but unless the old compost has become sour or decayed, or a larger pot is absolutely needed, annual repotting is undesirable. When repotting, afford liberal root room, with the pots filled to about a quarter of their depth with clean crocks, for perfect drainage is essential. The best compost for these plants is good fibrous loam and *Osmunda* fibre in about equal proportions. Cut the *Osmunda* fibre moderately fine, as it will then mix better with the loam than if used in a coarse state. A fourth part of freshly-gathered *Sphagnum*-moss may also be cut finely and mixed with these materials, adding plenty of small crocks. Pot each plant with moderate firmness, and keep the base of the plant just below the rim of the pot, and the compost filled up to the same level, so as to leave sufficient space for holding water. Good-sized specimens may with advantage be divided according to the requirements of the cultivator, repotting them into pots sufficiently large to admit of the increase of growth they are likely to make in two years. After the plants are repotted, their immediate surroundings should be kept constantly moist, and one thorough watering given them. Then, for a few weeks, water should be given sparingly, just sufficient being afforded to entice the *Sphagnum*-moss to grow on the surface of the compost. When growth is proceeding actively, these plants will take almost unlimited supplies of water. A cool, damp position in the intermediate house is the best place for the above-mentioned species and hybrids at all seasons, and they need shade from strong sunlight.

Cyrtopodium.—After a long rest, such species as *C. Andersonii* and *C. punctatum* are now recommencing to grow. As the flower-spikes appear in conjunction with the young growths, very soon after they have started, the plants will need far more heat and moisture than hitherto. Stand the plants in the East Indian house, or warm, moist stove, in the lightest position available, and from this time afford liberal quantities of water till growth is fully completed. *Cyrtopodiums* are not popular, but the branching panicles of bloom they produce, their general attractiveness when in flower, and the long time they keep fresh should be sufficient to recommend them.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir Ernest Cassel, G.C.B., Moulton Paddocks, Newmarket.

Early Peach trees.—Those trees which have set heavy crops may now have some of the fruits thinned out. First remove all twin or deformed fruits and any that are growing behind branches or in other unsuitable positions. The disbudding of shoots may also be commenced, but the operation should be continued for several weeks, in order to avoid a check by removing too many at one time. In the work of disbudding the operator must be guided by the characteristics of each individual tree. Generally speaking, the first outside growth at the base of the shoot should be retained, also the terminal growth on each shoot, this latter for extension. Other shoots must be left alternately at distances of 1 foot apart. Retain the shoots which spring from the same position as the fruits and pinch these shoots at the third or fourth leaf, for the presence of the shoots will have a beneficial effect upon the development of the fruits. Any strong, sappy shoots which arise from the larger branches are better removed altogether, as they tend to destroy the balance of the tree. Syringe the trees once or twice each day with tepid water,

and maintain an atmospheric temperature of 60° to 65°, at night allowing an increase of temperature. During the day water the borders with chilled water when this is necessary, taking particular care that the roots immediately near to the heating apparatus do not suffer from drought.

Strawberries.—Early plants which have set their fruits may now be thinned, leaving four to six berries on each plant. The fruiting spray should be supported by a small forked twig in order that it may be the better exposed to sun and air. If this is not done, the weight of fruit will cause the stem to bend over the edge of the pot, thus hindering a free passage of nutriment to the berries. The plants at this stage may be forced rather severely until the fruits commence to colour. The temperature may range from 65° to 75° at night and 75° by day, provided plenty of atmospheric moisture is promoted to balance the fire-heat. Attend carefully to watering, applying the liquid manure or soot-water alternately with clear water. Syringe the plants once or twice daily according to the weather, thoroughly wetting the undersides of the leaves to prevent red spider. Later plants now in bloom should be treated to a temperature of 55° to 60°; the atmosphere should be somewhat dry and the flowers need to be pollinated each day at about noon, using a rabbit's or hare's tail attached to a pliable stick or wire. It is well to have a little extra warmth in the water pipes in dull weather in order that the top ventilators may be opened for a few hours during the early part of the day. This will help to dissipate any moisture in the house and to dry the pollen. A common cause of Strawberry flowers failing to set is exposure of the plants to cold draughts when in bloom. Strawberries being generally placed on shelves near the top of the house, are extremely liable to suffer from such treatment.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Sweet Peas.—Each specialist has his own particular time for sowing seeds of Sweet Pea; but, for general purposes, good results may be obtained by sowing at the present time in pots, with the intention of planting-out the seedlings when the weather will permit. For this purpose it is well to select 3-inch pots which are clean and provided with drainage, using for a compost loam and leaf-mould which has been passed through a $\frac{1}{2}$ -inch meshed sieve, mixing with this compost a dusting of bonemeal. Make the pots three parts full with soil, but only place three or four seeds in each pot, unless there are reasons to believe the seed is not first-rate. Cover them with fine soil, but do not press it too firm. Label each pot correctly as the work proceeds, and place them in a cold frame, setting them "pot-thick" for the present. If a good watering is given them at once, the conditions will be such that germination will proceed naturally, and seedlings may be expected to grow strongly from the very first. A close watch must be kept that the seeds are not attacked by mice. As soon as the seedlings have commenced to grow, the frame must be ventilated on all favourable occasions; but the plants will need to be protected from frost. Support the young plants with small pieces of brushy twig, and see that they are thoroughly hardened before removing them out-of-doors.

Chrysanthemums.—If it is intended to increase the stock of border Chrysanthemums, or of any particular variety, or of obtaining fresh stock of particular varieties with a view to discarding the old stools, cuttings may now be inserted, assuming that the stools were lifted in autumn and stored in cold frames. The cuttings should be removed with a sharp knife, and, after preparation, should be inserted in fine, sandy soil, in pots or boxes, applying a good watering immediately afterwards. These cuttings will form roots even in cold frames, if kept near to the glass; but if they can be placed in a little warmth, the rooting process will be accelerated. The best place is in a frame on a mild hot-bed. As soon as they are well rooted, any that are large enough may be pinched to induce a bushy habit. Later, they may be potted into 3-inch pots, using a porous compost containing a little rotted manure and bonemeal. Potting should be done firmly, and the atmosphere should be

kept close for a while afterwards; but directly the plants have become again established, ventilation will be necessary on all favourable occasions.

Pentstemon.—Young plants of Pentstemon that were rooted last autumn and are still in the cutting pots or boxes, may now be potted singly into 3-inch pots. This work can be done when the weather does not permit of outdoor operations being carried on. Plants treated in this way will succeed much better than if they were removed from boxes to the pots or borders. Place them in a cold frame, and when they are established admit air on all favourable occasions, pinching those plants that were not pinched before they were potted. Afford protection during frost.

The shrubberies.—Planting operations being now completed, the shrubberies may be dug or forked to a good depth, leaving the surface soil moderately rough. After the lapse of a few months, it may be levelled down to a good tilth, and, with occasional rakings, be made to present a smart appearance throughout the season. Discretion must be exercised, however, for it is not advisable to dig very deep immediately close to the roots of choice shrubs. Examine all stakes and ties, and renew any that need it. Attend to the labelling of plants, for if this work is neglected now, it is scarcely likely to be done later.

Spring bedding.—Beds containing spring-flowering plants should have the surface stirred as frequently as necessary, taking care to avoid damaging any bulbs which may be just coming through the soil. Any gaps that have occurred amongst the plants should be made good.

THE KITCHEN GARDEN.

By JOHN DENN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Onions.—It was formerly the general practice to sow Onions on ground recently occupied by Celery, for the reason that the soil was heavily manured before planting the Celery. It is, however, better to trench and manure the land in autumn intended for the general Onion crop, leaving the surface as rough as possible during winter. If this is done, it merely requires to be forked over in spring, and allowed to remain until it is fairly dry, when it may be trodden, levelled, and raked over. These operations cannot be done satisfactorily unless the ground is dry, therefore it is better to defer planting even for a week or two after the usual time if the weather is unsuitable. The seeds should be sown in shallow drills, drawn at 18 inches apart, and the seed covered carefully by pushing the soil from the sides of the drill with the feet. The ground should then be lightly trodden and raked over with a wooden rake, care being taken not to disturb the seeds. Autumn-sown Onions should be planted out as soon as the state of the ground will permit, selecting rich soil in an open position. They should be planted in rows 18 inches apart, and the ground may be made firm in the same manner as for the spring crop. As soon as the plants are re-established, they should be given an occasional dusting of soot or artificial manure, and the Dutch hoe should be worked between the rows occasionally to stir the surface soil. Autumn-sown Onions grow much larger in size and have a milder flavour than those raised in spring, and they come into use when Onions are scarce.

Lettuces.—The Lettuce plants raised in October and wintered in a cold frame will now be ready for planting on a south border. The soil for this early crop should be of a rich and light nature. The plants may be put in rows 1 foot apart, allowing the same distances between the plants in the row. These Lettuces should be ready for use in April and May, and, in the latter month, the Lettuces sown in boxes a month ago will come as a succession. Lettuces require frequent dustings of lime to protect them from slugs and other pests.

Carrots.—As soon as the first sowing of Carrots appear above the ground, a further sowing of the variety Early Horn may be made in a cold pit. If the weather is favourable, a small sowing of the same variety may also be made in some sheltered part of the garden, sowing the seed in rows

9 inches apart, and lightly covering them with finely-sifted soil. This slight covering may easily be sown with the hand in sufficient quantity to level the drills.

French Beans.—These may be sown in hot-beds, on beds of leaves covered with soil to a depth of at least 9 inches, and made firm by careful treading. Sow the seeds in drills 18 inches apart and 2 feet deep. As soon as the young plants are well above the ground, syringe them freely. If a dwarf-growing variety is chosen, and sufficient ventilation is employed to keep the growth sturdy, the plants will not require the sticks for support. If pits are not available, frequent small sowings should be made in pots, and the pots placed in a structure having an atmospheric temperature of 60°, and where there is plenty of moisture. Excellent varieties for this purpose are Progress, Ne Plus Ultra, and Earliest of All.

PUBLIC PARKS AND GARDENS.

By W. W. PETHERICK, Superintendent of City Parks, Cardiff, Glamorganshire.

Roller skating.—At the present moment a craze exists all over the country for roller skating. The indulgence in this pastime is not confined to the youthful, but has even become the amusement of the middle-aged and elderly folk. The better-to-do classes are spending time and money in its enjoyment on the specially-prepared floors which are laid down in the rinks now springing into existence in nearly every town of importance. Those who cannot afford to patronise such places—more especially children—are constituting themselves a public nuisance and danger by skating on street pavements and high roads in and out among the ordinary pedestrian traffic. That this pastime has come to stay is very questionable, for its popularity has been too sudden and too general to have a lasting hold upon the public mind. Moreover, those of us who can carry our memories back for 30 years can well remember how a similar roller-skating craze was then in vogue for a short time, only to subside almost as quickly as it developed. There is, however, reason to believe that owing to the vastly improved mechanism of the skates used now, the popularity of roller skating will not be as evanescent as it was some years ago.

Hygiene.—That this form of skating is capable of being used as a beneficial and healthful exercise for young people cannot be denied; that it is such when carried out under the conditions existing in the covered-in area of the ordinary skating rink is open to doubt. The resultant dust (with its accompaniment of bacteria) caused by the movement of skaters, the vitiated air, and the risks from overheating and chills, all necessarily associated with the indoor rink tend to place it within the category of unhygienic exercises. On the contrary, in the open air, in a clear, pure atmosphere the pastime has everything to commend it. Under such conditions it would, during cold weather, be quite as invigorating as skating on ice.

Duty of the parks department.—It is now generally agreed that one of the chief duties of a parks department is to cater for the inhabitants of towns in such a way as to attract them away from unhealthy and uncongenial surroundings, whether these be their dwellings or places of amusement. Hence where suitable provision can be conveniently and cheaply made in a park for roller skating it should be done. While it would for many reasons be quite out of the question to construct suitable wooden floors in the open, it would be a very simple matter to lay down a cheap asphalt floor eminently adapted for roller skating. Skaters could not expect to find such a perfect surface as in the case of a wooden floor, but the drawback in this direction would amply be made up by the enjoyment of the healthful and pleasant surroundings of the open grounds.

Use of rink for other purposes.—A suitably-set-out asphalt roller skating rink might easily be utilised for tennis courts in the summer, and the fees derived from these, together with the charges made to skaters, would make such an undertaking, in some degree, self-supporting. No doubt the public would appreciate any provision made for these two popular summer and winter pastimes, and would patronise the ground freely.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 14—United Hort. Ben & Prov. Soc. Com. meet.

WEDNESDAY, FEBRUARY 16—Women's Agric. and Hort. Assoc. Annual Dinner.

THURSDAY, FEBRUARY 17—Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—39.3°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 9 (6 P.M.): Max. 42°; Min. 33°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 10 (10 A.M.): Bar. 30.2; Temp. 46°; Weather—Bright.

PROVINCES.—Wednesday, February 9: Max. 47° S. Ireland; Min. 35° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Border Plants and Perennials, Lilies, Gladiolus, &c., at 12; Roses, Azaleas, &c., at 1.30, by Protheroe & Morris, at 67 & 68, Cheapside, E.C.

WEDNESDAY—

Herbaceous and Border Plants, Lilliums, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms, Azaleas, &c., at 5, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY AND THURSDAY—

Unreserved Sale of Nursery Stock at Tunbridge Wells Nurseries, Tunbridge Wells, re T. Cripps & Son, Ltd., by Protheroe & Morris, at 11.30.

FRIDAY—

Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The L.C.C. Parks Appointment.

The studiously moderate appeal which we addressed last week to the members of the London County Council has failed. Our attempt to secure the appointment of a man trained in horticulture to the post of chief officer of the London parks has proved unsuccessful. An Army officer has been appointed.

Nevertheless, the appeal has not been made in vain. In the Council itself, effective and, indeed, unanswerable protest was made. In the horticultural world the action of the Council has raised such a storm of indignation and resentment as will prevent a like appointment ever being made again. The recent decision can be ascribed only to the Council's ignorance of the duties and possibilities attaching to this post. These the members might have learned by visiting the parks of such cities as Glasgow, Edinburgh, Leeds, Cardiff, or other of the great cities where the parks are under the charge of civilian experts, and the results are entirely satisfactory. Major Enthoven confesses, as the report in the present issue testifies, that he is ignorant of horticulture. We, who speak with knowledge, tell the Council that the first qualification for the post of chief officer is practical experience in that subject. None but a trained horticulturist is qualified to fill the position. The men under the chief officer are skilled British workmen, who want no soldiers' discipline. They have pride in their work and

serve faithfully a man whose technical qualifications they can respect, and whose success in similar posts has proved his powers of leadership.

The chief apologist for the appointment urged that the post required a man of business training and proceeded, with relentless logic, to recommend the appointment of an army officer. He would advise us to join the army in order to learn business so as to equip ourselves for a horticultural post. We are reminded of Alice in Wonderland.

So much for this appointment. Let us turn from it in order to consider how the horticulturist may best protect his interests in the future? What is to be done to prevent the recurrence of such appointments? He must take steps to establish something of the nature of a National Diploma in Horticulture: some means not only of testing the capacities of men trained in horticulture, but also of educating the ignorant as to the meaning of horticulture itself. It is only by taking some such step that we may hope to enlighten men like those gentlemen who stated in the Council that a gardener was not wanted for the post. In the meantime we protest in the name of horticulture against this appointment.

Royal Horticultural Society.

At the annual meeting of Fellows, which took place on Tuesday last, Sir Trevor Lawrence made several important announcements. One, connected with the Lindley Library, will be read with interest by all who appreciate the permanent value of the collection of books which the Trustees have acquired during the past 40 years or so since the purchase of the late Dr. Lindley's library with money obtained from the 1866 Exhibition. In the annual Report of the Council, published in our last issue, a short, carefully-guarded note appeared, in which it was stated that negotiations were proceeding in reference to the future management of the library. Mr. Elwes, therefore, asked the president for further information, and this was accorded freely both by Sir Trevor Lawrence and the treasurer, Mr. Gurney Fowler. It appears that, if the negotiations with the Charity Commissioners result as the Council hope and expect, the money now invested with the Trustees will be held by the Commissioners. The present Trustees will cease to exist, and, instead, Trustees will be appointed by the Council; indeed, they will form a committee within the Council.

We are given to understand that, whilst the funds will be held by the Charity Commissioners, the management of the library will be practically in the hands of the Council, and the ownership of the library vested in Trustees to insure the inalienability of the library in settlement of liabilities of the Society. Only those whose memory is sufficiently long to call to mind circumstances in the past history of the Society, will thoroughly appreciate the importance of this provision. Happily, the Society is now so flourishing that there appears no likelihood of it ever falling upon evil times, but this is not outside the pale of possibility. We look to the present Trustees to see that the arrangements now being made will have the effect

claimed for them, in which case those who are most interested in the library will have reason to join in the congratulations extended to the Council on Tuesday last by Mr. Elwes. We say this much, because it is felt that there has been an unwillingness on the part of the Council to afford such financial support to the Library as might reasonably be expected from so prosperous a Society, owing to the fact that it could not control the management. There is every reason to expect that, under the new arrangement, more money will be spent in the purchase of books, and that this money will be given with greater readiness. In addition to the money required for the purchase of new books, we may also point to the desirability of publishing a new catalogue. The present catalogue needs to be brought up to date, but it is equally desirable to provide a subject index. A person who wishes to read up a certain subject is not at present in the position to make use of the Lindley Library, unless he knows the author of the book he wishes to consult. Whilst it is useful to have an index in which all the works of a particular author are grouped under his name, it is just as important to readers that the names of the same books may be found under their own subjects. Several speakers on Tuesday congratulated the Council on the fact that a sum of £215 had been spent during the past year in the purchase of old and new books, mainly of a floricultural nature. We take this circumstance to point to the determination of the Council, when the present negotiations have terminated successfully, to do their utmost to make the library more comprehensive. The suggestion of Mr. Jacob that one or several Fellows should be appointed to act as "eyes and ears" to the Council for securing desirable books that now and again come into the market is one deserving sympathetic consideration.

A matter not entirely dissociated from the library is the effort which has been made to obtain a revised edition of Pritzel's *Iconum Botanicarum*. This desirable object is not making satisfactory progress; it appears that £3,000 is needed, and towards this sum the Royal Horticultural Society has offered to contribute £750. It is hoped that several of the American Universities, and others interested in the matter, will contribute the remaining amount. The reasons advanced by Mr. Wilks for the delay appear to be perfectly sound, for, if this most useful work is to be brought up to date, it is essential that every means possible should be taken to ensure accuracy. It is certainly undesirable to expend money in republishing an unverified edition.

Turning to the question of shows, the Fellows heard with surprise that the forthcoming exhibition at Holland House will be the last of the series, at any rate, for the present. Whilst all will regret the departure from this historic and beautiful place, the Fellows will feel grateful to Mary, Countess of Ilchester for the privileges so generously accorded the Society in the past. The summer exhibition in 1911 will be held at Olympia; we may therefore expect that experience will then be gained as to the suitability of the place for the great International Exhibition which the Council has under consideration. The difficulties connected with

acquiring a site for the International Exhibition have made it necessary to postpone this show until 1912. Sir Trevor Lawrence stated that negotiations are in progress with the object of securing the grounds attached to Chelsea Hospital for that purpose. Although this site is under consideration, it is not certain that it will ultimately be decided upon, but it is necessary that a site of some sort should be known to be available before definite steps are taken to arrange the date of exhibition. We hope that all horticulturists, whether Fellows of the Royal Horticultural Society or not, will cordially support the Council in promoting this exhibition, which should be a worthy successor to the memorable event of 1866.

The negotiations with the Royal Agricultural Society to hold a Horticultural Exhibition in connection with the Agricultural Show at Liverpool have fallen through, and the Royal Agricultural Society will hold a horticultural show under its own auspices. As the date for the Liverpool Show is on a Wednesday immediately succeeding a Tuesday's show at Westminster, it will probably be felt that this result is not altogether to be regretted.

We need scarcely refer to the other matters touched upon by Sir Trevor Lawrence. The increase in the Fellowship and funds of the Society, and the surplus of £7,000 on the year's working were pointed out in the Report. In financial as well as other respects the Society is well managed, and continues to increase its prestige and extend its usefulness. Only one word needs to be added; it is that the Fellows are deeply indebted to the excellent treasurer, Mr. Gurney Fowler, who, at the annual meetings, gives such lucid and straightforward statements as to the financial policy. Such statements are calculated to stimulate the confidence the Fellows already freely extend to the Council and its principal officers, and, in particular, to the president and secretary, who have worked so long and so successfully to forward the Society's interests.

OUR SUPPLEMENTARY ILLUSTRATION.—

Rehmannia angulata is now seen so often in gardens and at exhibitions that it is difficult to believe the species was only recently introduced to this country. It was sent home from China by Messrs. JAS. VEITCH & SONS' traveller, Mr. E. H. WILSON. The plant is not hardy in Britain, except in a few favoured localities in the south and west, but its value as a cool greenhouse subject can be seen from our Supplementary Illustration, which was prepared from a photograph taken in the greenhouse at Kew in June last. The plants were growing in 6-inch, 7-inch, and 8-inch pots, some of the specimens being 6 feet in height. They were 15 months old from the seed, which was sown in March. The plants were wintered in a cold frame, covered with mats and litter during severe frosts. In the spring, as soon as the flower-stems commenced to push forth, the plants were transferred to a cool greenhouse, and, when growing freely, were supplied with liquid manure. A suitable soil for this *Rehmannia* is one consisting of loam, leaf-mould, coarse sand, and, for the final potting, some well-decayed manure. Although the plant is a perennial, it is better treated as a biennial. Seeds are produced freely, and seeds furnish the easiest method of increase, but propagation may also be effected from young plants produced by buds developed on the roots. *Rehmannia angulata*

was first discovered by Dr. A. HENRY in the Central Provinces of Hupeh and Kweichaujit. The leaves are pinnately lobed; the flower-stems rise to a height of 4 feet to 6 feet. The drooping, tubular pink flowers are borne singly in the axils of the leaves; they are of purplish colour with a yellow throat, which is sometimes blotched, or spotted with dark purple. This variation in the flowers is considerable and there are some distinct forms, one of which is known as Pink Perfection. Plants intended for bedding out-of-doors should be kept in cold frames during the winter.

R.H.S. EXAMINATION OF PUBLIC PARK

EMPLOYEES.—The fourth examination was held on January 10, 1910. Ninety-one candidates entered, and of these 31 secured places in the first class, 26 in the second, and 25 in the third, leaving only nine candidates who failed altogether to satisfy the examiners. The number of entrants was smaller than for some years past, but this was anticipated, for the majority of the London parks gardeners had already secured positions in the past lists. The results of the examination are above the average, and in a few cases very high marks have been obtained. There was less tendency in the answers to give information not asked for in the question, but there is still a noticeable lack of understanding of many simple garden terms, such as "indigenous," "alluvial," &c. Although instructed in prominent black letters at the head of the questions, some candidates did not attempt the compulsory question asking for a description of the public park or garden in which they work.

NATIONAL VEGETABLE SOCIETY.—The schedule of the Society's first exhibition, to be held in the Royal Horticultural Hall, Vincent Square, Westminster, on Wednesday, September 28, includes some 59 classes. The premier one is for 12 kinds of vegetables, and is open to all, the first prize of 10 guineas being given by the Duke of PORTLAND, K.G., and the second of seven guineas by Lord HOWARD DE WALDEN. The Society offers prizes of £5, £3, and £2 respectively for nine dishes of distinct kinds, the class being open to all except those competing in the previous class already mentioned. Prizes are offered by Lord NORTHCLIFFE in classes open to smallholders. The *Country Life* class is for eight dishes of little-known vegetables to be selected from a given list. The Society has 17 small classes for various vegetables, and the remaining classes are contributed by nurserymen, manure merchants and horticultural sundriesmen.

LINNEAN SOCIETY.—The next meeting will take place on Thursday, the 17th inst., at 8 p.m., when the following papers will be read:—"The Plume-moths of the Seychelles Expedition," by Mr. T. B. FLETCHER, R.N., F.E.S.; "Die von Herrn Hugh Scott auf den Seychellen gesammelten Embiidinen, Coniopterygiden und Hemerobiiden," by Dr. G. ENDERLEIN; "Die Termiten der Seychellen-Region," by Dr. NILS HOLMGREEN; "On the Land and Amphibious Decapoda of Aldabra," by Mr. L. A. BORRA-DAILE, M.A.—Exhibitions: "Observations on the Genera *Widdringtonia* and *Callitris*," with lantern slides, by Mr. W. T. SAXTON, M.A.

ROYAL METEOROLOGICAL SOCIETY.—A meeting of the society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, the 16th inst., at 7.30 p.m. The papers to be read include: "Report on the Phenological Observations for 1909," by Mr. EDWARD MAWLEY, and "The North Atlantic Anticyclone: Tracks of the Centres of High Areas, 1882-3," by Colonel H. E. RAWSON, C.B., F.R.Met.Soc.

SELBORNE SOCIETY.—The annual conversation will be held in the theatre and halls at the offices of the Civil Service Commission (formerly the University of London), Burlington Gardens, New Bond Street, W., on Friday, February 18, from 7.30 to 11 p.m. An address will be delivered by the Hon. Sir JOHN COCKBURN, K.C.M.G., M.D., president of the Brent Valley Branch of the Selborne Society, and a lecture on "Selborne and its Associations with Gilbert White," by E. J. BEDFORD, Esq. The exhibits will be as numerous and interesting as usual at these gatherings. The secretary is Mr. WILFRID MARK WEBB, Odstock, Hanwell.

RETIREMENT AFTER LONG SERVICE.—After a period of 41 years as gardener to Sir E. R. SEBRIGHT and former members of the family, Mr. JOSIAH FREEMAN is retiring from his duties. For many years he was engaged at Beechwood, Dunstable, where the SEBRIGHT family made their home, but latterly Sir E. R. Sebright has resided at Cheverells, Markyate, Dunstable. Mr. FREEMAN is succeeded by Mr. CHARLES JEFFRIES.

PRESENTATION TO MR. JOHN WRIGHT, V.M.H.—Surrey was one of the first counties to realise the importance of teaching gardening to school children, and owing mainly to Mr. WRIGHT, the establishment of school gardens has been taken up with great enthusiasm in the county. His extensive practical knowledge has been invaluable to the County Committee in organising and directing this and other educational work connected with gardening. Now, after a period of 18 years, Mr. WRIGHT has resigned his post as chief horticultural superintendent. The school teachers in the county have presented him with an illuminated address in "appreciation of the great ability, zeal and enthusiasm displayed in the work" and "of the general kindness and unfailing courtesy shown to every teacher and scholar." Our readers will join with us in wishing Mr. WRIGHT many years of happiness in his retirement after his active and useful career as gardener, editor and instructor.

LATE CHRYSANTHEMUMS.—In connection with the correspondence that has recently taken place in these columns on this subject, we have received some flowers from Mr. THOMAS STEPHENSON, head gardener at Woburn Place, Addlestone. These represent the varieties Framfield Pink and Red Mrs. W. J. Crossley. The flowers are quite as good specimens as were seen in November, and are produced on stiff stems 14 or 16 inches long bearing healthy foliage. Mr. STEPHENSON states that the flowers were cut from plants rooted in February last. They were cultivated without any stopping or check, and each plant has borne about 24 blooms. The specimens furnish an excellent instance of first-rate cultivation for late supply.

"THE SWEET PEA ANNUAL."—We have received a copy of this annual for 1910, issued by the National Sweet Pea Society. It contains interesting articles on a Sweet Pea carnival in America, the Reading trials, Sweet Peas from cuttings, streak in Sweet Peas, and a report of the conference which took place on the evening of the annual general meeting of the Society, held on December 10 last. The volume also contains the result of a Sweet Pea election, details of the annual audit, and notes on the proceedings of the Society during 1909, including the trials at the Reading University College Gardens.

EXHIBITION OF FRENCH GARDENING.—We are informed that Mr. W. P. WRIGHT, Horticultural Superintendent under the Kent County Council, will superintend the exhibition of intensive culture, which is being held under the auspices of the Stour Valley Gardening School on March 23 at the Royal Horticultural Hall.

PROPOSED ADDITION TO WIMBLEDON COMMON.

Wimbledon Common may be said to be a natural continuation of Richmond Park, for it is separated from it by only a few open fields and the roadway. It is felt that part of the private land lying between the two places might some time or other fall into the market, particularly the part known as the Fitzgeorge Estate, which exceeds 300 acres in area. It is proposed, therefore, to purchase about 172 acres immediately adjoining Wimbledon Common and Putney Heath. Some of the other land has already been acquired as an addition to Putney Hill cemetery or as golf links, so that danger from building in that direction has been averted. Much interest has been taken locally in the present scheme, and the public is asked to contribute towards the cost of purchase. The object of acquiring the land, says the *Times*, is not so much to extend the Common as to preserve the scenery and to prevent any building. It is especially desired to preserve Beverley Brook, which is one of the few streamlets around London that have escaped being diverted or led into some underground sewer. One narrow portion of land about 15 acres in extent includes the western bank of the Beverley Brook, and if this were secured it would link the Common up to the Kingston Road and the Robin Hood gate, thus practically uniting park and common. Already £1,500 has been subscribed towards the cost, which, it is estimated, will exceed £15,000. The chairman of the committee is Dr. LONGSTAFF, Putney Heath, and the secretary, Mr. RICHARDSON, The Keir, Wimbledon Common, S.W.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE LATE PROFESSOR WM. HILLHOUSE (see p. 96).—The late Professor Hillhouse, M.A., M.Sc., F.L.S., was a son of John Paton Hillhouse, of Bedford, and in his youth was an assistant master at Bedford Modern School. He helped in the formation of the Bedfordshire Natural History Society, and in the re-issue of the *Flora of Bedfordshire*. In 1877 he determined to devote all his attention to botany, and he won a scholarship at Trinity College, Cambridge, and the University Winchester prize in 1881. From 1878 to 1882 he was curator of the University Herbarium under Babington. He was subsequently lecturer on botany at Newnham and Girton and also to the University. He was a co-founder and co-editor of the *Cambridge Review*, with Arnold and Dale. In the spring of 1882 Mr. Hillhouse was elected first professor of botany at the Mason Science College, as the institution was then called; but the latter half of that year was spent in the laboratory of Prof. Strasburger at Bonn, being associated with Prof. Strasburger in the preparation of *Strasburger and Hillhouse's Practical Botany*, which has reached its sixth edition. On returning to Birmingham, he reorganised the department of botany at Mason College, and in 1888 was elected chairman of the Academic Board, and for six years he was secretary to the Senate. Prof. Hillhouse not only took an active part in educational but also in social work. He had been president of the Birmingham Teachers' Association, the Birmingham Natural History and Microscopical Society, the Birmingham Naturalists' Union, and of two large suburban institutes. At one time he was co-editor of the *Midland Naturalist*, a monthly publication which ceased to exist some years ago. He occupied the chair of the Council of the Midland Reafforestation Association, he represented the University upon the governing body of the Lady Warwick Agricultural College, and upon the Leicestershire C.C. Education Committee. I am indebted to the *Birmingham Daily Post* for several of the above facts and dates. Professor Hillhouse took a deep interest in systematic botany, and he told me some 10 years ago that he had a definite scheme for the formation of an herbarium worthy of the University, which he

wished to see started as soon as funds were available. After making the British collections as complete as possible and developing the small European collection, he intended to get together dried plants from the various British colonies, and finally to start a general herbarium of the world's plants. In recent years he had been instrumental in acquiring for Birmingham, chiefly through the generosity of two or three of his local friends, several valuable collections of Cryptogams, including the Algae of Mr. E. M. Holmes, the Lichens of Mr. Larbalestier, the Mosses of Mr. Horrell, and a collection of fungi, besides several small collections of Alpine and other flowering plants. Writing to me at the end of 1907, he said: "Hence you will see that in one short year my department has acquired an herbarium which, so far as Thallophytes and true mosses go, would be hard to beat anywhere." In the annual report of the University of Birmingham, published a fortnight ago, it is stated that the late Professor Hillhouse had presented to the University 400 volumes of books and many hundreds of botanical pamphlets, together with much useful apparatus and 3,000 or 4,000 specimens of dried plants collected by the late Dr. Noe, Mr. J. G. Baker, of Kew, and others. Professor Hillhouse leaves a widow and one son. His chair at the University was filled last year by the appointment of his assistant, Mr. G. S. West, who is also, to quote his late chief, "a keen herbarium man." H. S. Thompson.

THE PRUNING OF YOUNG VINES.—The experience of Mr. Ward (see p. 89) supplies the exception to the rule. He is a first-class grower of Grapes and a skilful cultivator generally, but my object in penning the note on this subject was to assist beginners, who are daily making the mistake I pointed out. In vineries managed by many first-class men the same error is seen, and even if the vines are 20 years old the defect is visible, and will remain so. I am afraid the lengthy and minute details outlined by Mr. Ward on his method of treating newly-planted vines at Longford Castle are much too intricate for the amateur to follow, and, besides, such a person is not likely to raise his own vines in the same manner as Mr. Ward. In 19 cases out of 20 amateurs purchase one-year-old vines, which Mr. Ward would not treat in the same manner as those he raised and planted three months after striking the eyes. The method of establishing vines in the elaborate manner Mr. Ward describes is entirely different to that generally practised by amateurs. For the beginner, I think my plan is desirable. E. Molyneux.

STRAWBERRIES FILLBASKET AND GIVON'S LATE PROLIFIC.—Mr. Searle in his Hardy Fruit Calendar, printed on p. 86, does not mention, in his selection of varieties of Strawberries, either of the above varieties, which I found the best on heavy soils. They got more votes in your Strawberry election (see pp. 260 and 283, vol. xlv.) than the sorts named by Mr. Searle, except Royal Sovereign. I first saw them growing in Sir Frank Hollins's Garden, near Preston, when my friend, the late Mr. Ings, was gardener there. As space was limited, he had only a few plants for trial with other sorts, and they proved far better than the popular varieties then in cultivation. Mr. Ings kindly gave me some runners, and after getting a sufficient stock I discarded all others, except Royal Sovereign and Latest of All. I have not heard of any gardener or market gardener in this district who grows them. W. P. R.

SWEET PEA LADY G. HAMILTON.—I am grateful for the very kind review of my book on p. 85, and I note Mr. Brotherton's hint as to altering the spelling of Grizel to Grisell. I may say, however, that I had already gone very thoroughly into this matter. Mr. C. J. Giuliano sent me the pedigrees of the families of Haddington and Dundonald, with the statement that "the only Lady Grizel Hamilton who really exists in the peerage (according to the Ulster King of Arms) is the daughter of the Earl of Dundonald." Now, under "Dundonald," the name was spelt throughout as Grizel. If the late Henry Eckford named his beautiful lavender Sweet Pea after this lady, Grizel is the correct spelling. If he had named it after the daughter of the Earl of Haddington, it should, apparently, be Grisell, although Grizel and Grissell also

appear under "Haddington." It is rather curious that Grisel does not appear under either family, yet this form is the commonest of all. Walter P. Wright.

The Sweet Pea in question was named after the second daughter of the Earl of Haddington, and its history is as follows:—Henry Eckford, during many years, sent me his selected seedlings for trial, and I was, consequently, cognisant of much that he was doing. He had previously raised and lost a variety of much the same colour as Lady G. Hamilton, and on the occasion of his exhibiting the latter variety for the first time in London, he wrote me of his intentions, and, Lady Grisell Baillie Hamilton being in London at the time, I wrote to tell her of Mr. Eckford's forthcoming exhibit. Eckford named the Pea after her, and secured a certificate for it. Regarding the name: It is strictly a family one, and its history, since shortly after the middle of the 17th century, is as follows:—It was first borne by Lady Grisell Hume, whose daughter Grisell married George Baillie, of Jerviswoode and Mellerstain. She had two daughters, Grisell, who died childless, and Rachel, who married Lord Binning, whose eldest son succeeded to the earldom of Haddington, and the second son to the Jerviswoode estates, &c. In the last-named family there have been several Grisells, all of whom retained the original spelling. See *Memoirs of George Baillie and Lady Grisell Baillie*, by Lady Murray, and *Lady Grisell Baillie*, by the Countess of Ashburnham. In *Chambers's Domestic Annual of Scotland*, vol. ii., though he quotes from the first-mentioned book, he writes "Grizzel," so easy is it to make a mistake. The Dundonald family spell the name with a "z." R. P. Brotherton.

GALANTHUS ELWESII.—Regarding the interesting list of winter-flowering plants which Sir Herbert Maxwell gave on p. 82, it would be instructive to know his experience of the comparatively little known, but very cheap, *Elwes' Snowdrop*. Here it flowers a whole month—January 12—before *G. nivalis*, but out of 500 bulbs planted in 1906 only about 50 seem to have become established, and these are growing at the lower and damper end of a heavy clay bank, those in drier soils, where even *G. nivalis* flourishes, having entirely died out. Sir Herbert does not mention the equally little known *Muscari azureum*. The lovely blue of this flower, together with the Snowdrop and the winter Aconite, create a colour scheme which few seasons can beat. Basil Levett, Wychnor Park, Staffordshire.

SOCIETIES.**ROYAL HORTICULTURAL.**

FEBRUARY 8.—The annual meeting was held on Tuesday last in the Society's Hall, Westminster. As is usual on these occasions, there was a remarkably fine exhibition, all sections being well represented by many good groups. The number of visitors was above the average, and the general meeting, which took place at 3 o'clock, was well attended.

The ORCHID COMMITTEE had many important groups and several novelties brought to its notice. One Botanical Certificate and four Awards of Merit were awarded by this body. The FLORAL COMMITTEE gave an Award of Merit to a species of *Crinum*. The more important groups were of Carnations, forced flowering trees and shrubs, Primulas, Cyclamens, epiphytal Ferns, Camellias, and Alpine plants.

THE FRUIT AND VEGETABLE COMMITTEE had no novelty submitted for award, but they inspected many fine groups of fruits and vegetables. These included a large display of Oranges, collections of Potatoes, Onions, Leeks and Brussels Sprouts, and a fine exhibit of Apples.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. Henry B. May, Jas. Walker, E. A. Bowles, W. B. Cranfield, R. C. Notcutt, Jno. Green, W. J. Bean, G. Reuthe, George Gordon, Jas. Douglas, W. Howe, C. R. Fielder, Jas. Hudson, R. Hooper Pearson, J. F. McLeod, Charles Blick, Jno. Jennings, W. Bain, Chas.

Dixon, Ed. Mawley, Chas. E. Pearson, A. Turner, H. J. Cutbush, A. Kingsmill, Chas. E. Shea, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, W. J. James, Geo. Paul, F. Page Roberts, Rev. R. L. R. Nevill, and Walter W. Ware.

One of the most imposing groups was a collection of forced flowering shrubs and trees shown by Messrs. R. & G. CUTHBERT, Southgate. The great wealth of flowers, well arranged with regard to colour effect, was set off by tall Palms at the back and interspersed with Ferns and other greenery. Some of the subjects, such as Lilacs, were disposed in batches, whilst others, including standard trees of *Prunus triloba*, *Pyrus atro-sanguinea*, flowering Cherries and *Staphylea colchica* served as a relief. The centre was grouped with Magnolias in flower, the species including *M. Soulangeana*, *M. speciosa*, and *M. conspicua*, this last being especially good. About the front were plants of pink, bronze and yellow-flowered Azaleas, all bearing a profusion of blossoms. *Forsythia suspensa* and *F. viridissima* afforded further variety with their long, arching shoots furnished with yellow flowers. (Silver-gilt Banksian Medal.)

Another fine group of forced flowering trees and shrubs was shown by Messrs. JAMES VEITCH & SONS, LTD., Chelsea. It included well-flowered plants of *Prunus triloba*, the white form of *Cydonia japonica*, *Wistaria sinensis*, *Pyrus floribunda* *atro-sanguinea*, *Cydonia Maulei*, Lilacs in variety and *Staphylea colchica*. These were generally tall standard-trained plants, and they were set off by a broad band of Rhododendrons and Lilacs. Adjoining these was a group of standard Azaleas similar to those shown at the last meeting. On the table usually occupied by this firm they showed flowering plants in variety. These included a bank of *Primula obconica* with very fine blooms; some of the flowers being heliotrope—almost blue; others of rose, pink and similar shades were equally notable; plants of *Boronia megastigma* were well flowered. Both the foliage and flowers of *Abutilon vexillarium variegatum* are ornamental, the leaves being splashed with gold; pot plants of *Lily of the Valley* were crowded with fragrant flower-spikes. The group also included some very fine Azaleas, a batch of *Calceolaria Burbidgei*, *Daphne odora* (indica) and pans of *Primula Forbesii*. There was also a small pan of the beautiful *Saxifraga burseriana* Gloria. (Silver-gilt Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, staged a group of epiphytals Ferns. The genera represented were *Davallia*, *Niphobolus*, *Acrostichum* (syn. *Rhipidopteris*), *Polypodium*, *Drymoglossum*, *Platycerium*, *Anopeltis*, *Drynaria*, and *Asplenium*. It was interesting to notice that most of these epiphytic Ferns possess entire leaves. Many have two forms of fronds, barren and spore-bearing. The well-known *Platycerium alciorne* may be cited as an example. In *Acrostichum petatum*, the two forms of leaves are very distinct; the barren fronds resemble a sprig of Parsley, whilst the spores are borne on a flat, kidney-shaped lamina; *Drynaria quercifolia*, the basal fronds are like dried Oak leaves; the barren fronds of *Davallia heterophylla* are entire, the others narrower and with deeply-lobed margins, each lobe bearing four or five sori. *Niphobolus heterachitis* has very handsome, entire leaves, downy on top, and greyish-mealy beneath. Some species, such as *Polypodium vacciniifolium*, had long, hairy rhizomes very like a *Lycopodium*. The group also included a batch of plants of the elegant *Nephrolepis Marshallii*. (Silver-gilt Flora Medal.)

Messrs. WM. PAUL & SON, Waltham Cross, Hertfordshire, staged a floor group of Camellias. There were numerous plants with healthy foliage and bright flowers, and, along the front, boxes of gathered blooms. One of these boxes was filled with flowers of the white *Montironii vera* variety, very like the one known as Princess Charlotte. One of the best and freest of the white kinds is *alba plena*. Of well-known sorts, tricolor, imbricate (red), fimbriata (white), and *Donekelaari* (red, with white blotches) were finely shown. Eclipse, blush, with pale-red stripes, is very pretty. Amongst newer varieties, *Minerva* (pink), with a prominent bundle of stamens and only five or six petals; *Waltham Glory*, similar to the last-named, only dark red; and *Apollo*, semi-double, red, are all useful for planting in the open. (Silver Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, N., staged a rock-garden exhibit, planted with early-flowering subjects and with shrubs at the back. *Cyclamen coum*, *Crocus biflorus*, *Adonis amurensis*, *Tussilago fragrans*, *Morisia hypogaea*, *Hyacinthus azureus*, *Anemone blanda*, *Saxifraga Boydii*, *Primula malacoides*, *Polygala chamaebuxus purpurea*, *Iris Danfordii*, *I. Sindjarensis*, *I. reticulata*, and the purple variety named *Krelagei* were in bloom. Amongst the shrubs we noticed *Parrotia persica*, with red stamens, *Chimonanthus fragrans*, *Prunus triloba*, and *Daphnes japonica*, and *odora*. Messrs. CUTBUSH also showed a selection of Carnations, which formed a beautiful and striking display. A new variety of crimson-maroon shade was labelled *Chantecler*. (Silver Banksian Medal.)

The Misses HOPKINS, Shepperton-on-Thames, staged a small exhibit of Alpines, enclosed in a band of rustic cork, and a row of shrubs at the back. The subjects in flower included *Gentiana acaulis*, *Hepaticas* in variety, *Helleborus niger*, *Daisy Alice*, coloured Primroses, and *Tussilago japonica*.

Messrs. BAER & SONS, King Street, Covent Garden, displayed a bright group of early flowers, including a selection of bulbous plants. *Hellebores* were finely shown, also *Snowdrops*, *Scillas*, *Irises*, *Crocuses*, *Saxifragas*, and *Lachenalias*. A feature of the exhibit were bowls planted with *Narcissus Tazetta*, *Iris reticulata* (very charming), *Freesia* × *Chapmanii* (an orange-yellow hybrid), and Roman Hyacinths, one being of a blush shade, known as Early Blush Italian.

Mr. F. HERBERT CHAPMAN, Rye, Sussex, again showed hybrid *Freessias* and varieties of *Narcissi*, including *Katherine Spurrell*, *Blackwell*, *C. J. Backhouse*, and *Crown Prince*. There was also a plant of *Narcissus minimus*, with the corona or trumpet prettily fimbriated. Hybrids of *Cyclamen latifolium* and *C. ibericum* showed little influence of the first-named parent, although the flowers were brighter and finer than in *C. ibericum*.

Messrs. SUTTON & SONS, Reading, staged a group of *Cyclamen latifolium*, many of the plants having flowers with fringed petals. The plants were well cultivated, and the varieties included all the shades of colours seen in this useful greenhouse plant.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, staged a bright group of Carnations, also miscellaneous greenhouse plants, including *Eriostemon intermedius*, *Chorozema ilicifolium*, *Cyclamens* in red, salmon, white, and other shades, some having fimbriated petals; *Daphne odora*, an assortment of Azaleas, and the beautiful white *Erica codonodes* var. *Veitchii*. The group also contained decorative Ferns, small Orange trees in fruit, and several plants of the elegant *Phoenix Roebelinii*. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, showed a bright group of Azaleas, several plants being of the dwarf red-flowered variety known as *Hexe*. We also noticed charming little plants of *Aucuba*, covered with scarlet berries, some being trained as standards; *Daphne indica*, *Eurya latifolia*, *Dracenas* in variety, and Orange trees fruiting. (Bronze Flora Medal.)

Mr. C. ENGELMANN, Saffron Walden, contributed a display of Carnations, most of the blooms being of the large crimson variety *Carola*, which is like a big Clove Carnation. Many vases contained flowers of unnamed seedling varieties, amongst which was a pretty pink sort, and another with orange petals splashed with red. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed Chinese *Primulas* of the *Stellata* or *Star* type. The varieties were *Mrs. H. Cannell* (white), *Chameleon* (rose), *White Lady*, *Scarlet Gem*, *Lady Emily Dyke* (white), *Blue Lady*, and *W. Raphael*.

Mr. H. BURNETT, Carnation specialist, Guernsey, again contributed a very attractive exhibit of these popular flowers. (Silver Flora Medal.)

Mr. W. PALMER, Andover, showed double-flowered *Primulas* in white and pink shades.

Messrs. THOMAS S. WARE, LTD., Eltham, staged a rock-garden exhibit, and planted it with early-blooming subjects and dwarf shrubs, with here and there a plant of *Clematis indivisa* in flower. The centre of the exhibit was lower than the rest, and was filled with a variety of *Hellebores*. Another feature was a bank of the pink-flowered *Pulmonaria rubra*. This firm also showed plants of *Primula obconica* with very large flowers and foliage.

Messrs. JOHN PEED & SON, West Norwood, also exhibited a rock-garden planted with seasonable subjects, such as *Iris histrioides*, Christmas Roses, *Adonis amurensis*, *Primula* × *kewensis*, and *Petasites fragrans*: a portion of the exhibit was furnished with small plants of succulent species.

Messrs. J. CHEAL & SONS, Crawley, Sussex, showed Alpine plants arranged on a rockery, at the back being dwarf shrubs and Conifers. A very pretty feature was a mass of *Rhododendron præcox* on one of the bluffs, grouped about with tiny Conifers. Some well-flowered plants of *Iris reticulata* were noted. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, showed a floor group of Himalayan Rhododendrons, the species including *R. argenteum*, *R. barbatum*, *R. eximium*, and *R. Falconeri*. These were not in flower, but they were large and healthy specimens. There was also a big plant of *Daphniphyllum glaucescens*. Around the front of the shrubs were Alpine plants of choice and uncommon species. *Orchis longibracteata* has sweet-scented, rose-coloured flowers. *Romula bulbocodium* is very like a *Crocus*. *Eranthis cilicica* differs from the common Winter Aconite in having a much smaller rosette of bracts. (Silver Banksian Medal.)

AWARD OF MERIT.

Crinum purpurascens.—A pretty species, bearing an inflorescence with seven flowers, shown by Sir TREVOR LAWRENCE, Bart. (gr. Mr. Bain).

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshaw, C. J. Lucas, J. Forster Alcock, F. Sander, R. G. Thwaites, J. Charlesworth, C. H. Curtis, W. Cobb, J. Cypher, A. Dye, W. P. Bound, W. H. Hatcher, W. H. White, H. G. Alexander, H. A. Tracy, H. Ballantine, Gurney Wilson, W. Bolton, and Sir Jeremiah Colman, Bart.

Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed several new hybrids, including *Lælio-Cattleya Ariel superba* (*L. Cowanii* × *C. aurea*), a showy flower, with reddish-gold sepals and petals and ruby-red lip, with gold lines; *L.-C. Tigris* (*L. Cowanii* × *L.-C. Dominiana*), with pretty, clear, yellow flowers, the colour of *L.-C. Dominiana* having been suppressed by the yellow of the other parent; *Sophro-Lælio-Cattleya Danæ* Holford's variety, a well-rounded, yellowish rose flower, with orange base to the lip; and the very fine *Cattleya Percivaliana* Westonbirt variety. (See Awards.)

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), staged a group of species and hybrids, for several of which see Awards. Among those noted was a new hybrid *Odontoglossum* between *O. Edwardii* and *O. sceptum*, a very attractive flower, with sepals and petals purplish-chocolate, the lip having a yellow crest, red middle, and white tip, the whole being arranged in a compact spike. Another new hybrid was an *Odontoglossum* between *O. triumphans* and *O. percutum*, of a Cowslip yellow shade, barred and blotched with red-brown. The handsome *Dendrobium Lady Colman*, *Cirrhopetalum Mastersianum*, *Spathoglottis Colmanii*, *Ipsea speciosa*, *Cynorchis Lowii*, *Masdevallia melanopus*, *M. torta*, the rare *Oncidium Sanderianum*, *Phaio-Calanthe Colmanii rosea*, *Angraecum hyaloides*, and other interesting plants were also shown.

Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White), showed a handsome form of *Odontoglossum Lawrenceanum* (Rolfæ × *triumphans*).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver-gilt Flora medal for a fine group, containing several sets of hybrid *Cypripediums* flowering for the first time, some of the varieties of the crosses between *C. Actæus* and *C. Euryades* and other crosses of *C. Euryades* being remarkably handsome flowers. A batch of *C. villosum giganteum* × *Euryades* showed remarkable variation in the size and colour of their flowers; varieties of *C. aureum*, and hybrids of it, were also well represented; and, in fine condition, *C. Minos Youngii*; *C. insigne* Sanderæ, raised from seed and an improvement on the original; *C. Golden Glory*, a new variety, of unknown

parentage, with bright-yellow flowers with but few markings on the dorsal sepal; *C. Little Gem*; various *Cattleyas*, including a plant of the original *C. Trianae* Courtaldianum, of good shape, but not showing the striped petals as when first described; *Brasso-Cattleya Digbyano-Mossiae*; a selection of *Odontoglossums*; and *Dendrobiums*, the latter including some of the earlier Veitchian hybrids, such as *D. Cassiope*, covered with white flowers.

Messrs. CHARLESWORTH & Co., Hayward's Heath, were awarded a Silver-gilt Flora Medal for a handsome group of excellent things, the hybrids including a very fine selection of *Odontoglossums* with elegant sprays of flowers; several of the handsome *Cattleya Lugeæ* (*Enid* × *Dowiana Rosita*); some *Sophranitis* crosses, including the pretty, dark-scarlet *Sophran-Lælia Psyche*, with many spikes; and *S.-L. Leda*, with rose flowers. Many good *Cypripediums* were in the group, also a very rich scarlet form of *Odontioda Keighleyensis*, *O. Bradshawiae*, *Spathoglottis aureo-Veillardii*, the pretty mauve-coloured *Sophranitis violacea*, *Miltonia Bleuana* (very finely flowered), *Xylobium leontoglossum*, a fine selection of *Calanthes*, including strong specimens of *C. Regnier rosea*, and many others.

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for an effective group, the centre of which was composed of well-flowered plants of *Phalenopsis Schilleriana*, with which was a very handsome natural hybrid, either of *P. Schilleriana* or *P. Sanderiana*, most probably the latter, the fine, round, blush-rose tinted flowers resembling that species, but the cirrhæ on the front of the lip being shorter and the leaves marbled, as in *P. Stuartiana*. Among forms of *Cattleya Trianae*, the Arnot Hill variety was very handsome, and a new hybrid *Dendrobium* between *Venus* and *nobile nobilium* had large flowers of rich colour. There was also a good selection of *Odontoglossums*, including a very large-flowered, dark *O. Wilckeanum*, distinct *O. harvenstense*, and other hybrids; some excellent *Cypripediums*; and the new *Calanthe Butterfly*, white, with rose-crimson lip.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for an effectively-arranged group, in the centre of which were many fine *Calanthes*, including *C. Wm. Murray*, *C. Bryan*, and *C. Sandhurstiana*, the last-named being the brightest magenta-rose form. At one end was a selection of *Odontoglossums*, a secondary hybrid of *O. ardentissimum* being richly marked. Among the *Cypripediums* noted were varieties of *C. aurea*, *C. a. Lambianum* having an emerald-green flower with white upper part to the dorsal sepal; and *C. villosum auriferum*, *C. Mrs. Wm. Mostyn*, *C. Beekmannii*, *C. Curtmannii*, and other showy varieties were remarked.

Messrs. STUART LOW & Co., Bush Hill Park, received a Silver Flora Medal for a group, in which the forms of *Cattleya Trianae* were good, *C. T. Roebelen's* variety, a fine flower with mauve-purple front to the lip, and *C. T. Pandora*, a white-petalled form, being the best. A selection of Messrs. Low's importation of *Cattleya Percivaliana*, showing great variation, one light-petalled form having a blackish-purple blotch on the lip, and the yet small-flowered white *C. P. Little Gem* being remarkable. A good selection of *Cypripediums*, the white *Aërides Vandarium*, *Cymbidium Holfordianum*, a selection of *Dendrobiums*, *Oncidium ornithorhynchum album*, *Epi-Cattleya Nebo* (*O'Brienianum* ×), with pretty rose flowers with white-fringed lip, and several *Platyclinis gulmacea*, &c., were also included.

E. ROGERSON, Esq., West Didsbury, Manchester (gr. Mr. W. C. Price), was awarded a Silver Banksian Medal for a neat group, rich in good *Cypripediums*, among which were noted *C. Congo*, a very dark flower; *C. Mrs. E. Rogerson*, very fine in size, shape, and colour; a good dark *C. Laurebel*; *C. Transvaal superba*; *C. Zeus Oakdene* variety and *C. Olga Bagshaw*, both of excellent quality; *C. Euryades Price's* variety, a very distinct form, with the colour at the back of the dorsal sepal slightly clouding the surface around the spotting; *C. Maurice* (insigne Harefield Hall × *Sallieri Hyeunum*), a yellow flower, prettily spotted and of excellent shape; and many others, all well grown. At the back of the group were *Dendrobium Wardianum*, various *Odontoglossums*, including some handsomely-blotched *O. crispum* and *O. ardentissimum* crosses, *O. Fascinator*, &c.

Mr. E. V. Low, Vale Bridge Nurseries, Hay-

wards Heath, was awarded a Silver Banksian Medal for a small but select group of good Orchids. Among the forms of *Cypripedium aureum* were *Surprise*, with three handsome greenish-yellow and white flowers, and *Hyeunum* and virginale equally good; *C. Acteus Langleyense*, *C. Beekmannii*, one having two flowers to the spike; *C. Thalia Mrs. Francis Wellesley*, *C. Thompsonianum*, &c. At the back were several *Cymbidium Wiganianum*, bearing together nine spikes.

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham (gr. Mr. Black), showed a *Cattleya* between *C. Mendelii alba* and *C. Gaskelliana alba*, the hybrid being white, with rose-pink marking on the lip.

W. M. APPLETON, Esq., Weston-super-Mare, sent *Cypripedium ingens* (insigne × *Rothschildianum*), a distinct large flower.

Mrs. TEMPLE, Leyswood, Groomsbridge (gr. Mr. E. Bristow), showed *Brasso-Cattleya Vesta* (*C. Percivaliana* × *glaucæ*), a pretty rose-coloured flower.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent *Odontoglossum Lambeauianum* Goodson's variety, a finely shaped flower, heavily blotched with rose-purple.

Mons. MAURICE MERTENS, Mont St. Amand, Ghent, staged a small group of good hybrid *Odontoglossums*, including *O. laudatum*, *O. Vuylstekei*, fine varieties of *O. ardentissimum*, and two plants of the clear white *Cattleya Susanne Hye de Crom*.

C. L. N. INGRAM, Esq., Elstead House, Godalming (gr. Mr. T. W. Bond), showed *Dendrobium intermedium* (splendidissimum × *nobile nobilium*).

J. J. NEALE, Esq., Lynwood, Penarth (gr. Mr. H. Haddon), sent *Lælia Lynwoodii* (*Jongheana* × *harpophylla*), an interesting hybrid with light yellow flower.

AWARDS.

AWARD OF MERIT.

Cattleya Percivaliana Westonbirt variety, from Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander).—The finest *C. Percivaliana* yet shown in size, colour, and shape. The broad sepals and petals nearly equal *C. labiata*; they are bright magenta-rose with darker veining. The front of lip is deep reddish claret margined with lilac; the tube is tinged with gold colour.

Brasso-Cattleya Wellesleya (*C. Mossia Wagneri* × *B. glauca*), from FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins).—A charming pure white fragrant flower, and quite the best hybrid of *Brassavola glauca*. The flower is firm in substance, the segments broad and well displayed, the flowers being abnormally large compared with the dwarf habit of the plant. The disc of the lip is slightly tinged with lemon-yellow.

Dendrobium Duchess of Albany (*Wiganianum* × *Wignonia xanthochilum*), from Sir JEREMIAH COLMAN, Bart.—A very beautiful and distinct hybrid, with well-formed, wax-like, white flowers, with a slight blush tint and some thin purple lines on the side lobes of the lip, the centre having a slight sulphur tint.

Cypripedium Leeannum Excelsior, from H. J. BROMILOV, Esq., Rann Lea, Rainham, Lancashire (gr. Mr. W. J. Morgan).—A very fine variety of the same class as *C. Leeannum* J. Gurney Fowler, and with broad proportions and fine substance. The large white dorsal sepal had rose-purple spotted lines rising from a green base, the rest of the flower being dark coloured.

BOTANICAL CERTIFICATE.

Dendrobium arcuatum, from Sir JEREMIAH COLMAN, Bart.—A pretty species from Java never before exhibited. The stems are slender and leafy, the newly-made one bearing four racemes, each with four white flowers an inch across and bearing stout spurs curved forward at the tip.

CULTURAL COMMENDATION.

To Mr. Collier, gr. to Sir JEREMIAH COLMAN, Bart., for *Cymbidium grandiflorum* with three spikes, and in a comparatively small pot.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the chair), and Messrs. J. Cheal, A. Dean, A. R. Allan, Owen Thomas, H. Parr, W. Poupard, W. Bates, H. Hooper, H. Rivers, C. G. A. Nix, J. Lyne, Jas. Vert, and S. T. Wright (hon. secretary).

Messrs. T. RIVERS & SONS, Sawbridgeworth, Hertfordshire, showed a large group of Orange trees in pots. There were three especially magnificent specimens, one, of the Egg variety, being the finest-fruited tree we have seen. It bore fruits in bunches, each fruit being about the size of a Jaffa Orange, of a magnificent orange colour, these being set off by leaves of the deepest green. Another specimen of the Dom Louise variety had its branches covered with fruits, but it was very sparse of foliage. Malta Oval is another fine variety, and is evidently a good cropper. There were named sorts besides these, and some large Citrons and various other species of the Citrus family, including some with variegated foliage. Most of these were more interesting than beautiful, and the group suffered somewhat, from a spectacular point of view, in being spread out too much. (Silver Knightian Medal.)

Messrs. GEO. BUNYARD & Co., Maidstone, Kent, staged a very complete collection of Apples, having in all 118 dishes representing more than 100 varieties. The fruits had been splendidly kept, and were well coloured, although not so bright as we have seen them on previous occasions from this nursery. Some of the choicest specimens were Tyler's Kernel, Mabbott's Pearmain, Mother, Newtown Wonder, King of Tompkins County, Bismarck, Chas. Ross, Golden Noble, Nancy Jackson, Gascoyne's Scarlet Seedling, Beauty of Kent (very fine), Gloria Mundi, Lady Henniker, Smart's Prince Arthur, Annie Elizabeth, and May Queen. There were also a few dishes of Pears, including some very large fruits of the Catillac variety. (Silver-gilt Knightian Medal.)

Messrs. DOBBIE & Co., Rothesay, Marks Tey, Essex, showed about 40 varieties of Potatoes staged in baskets. They were a splendid lot of tubers, well selected as to size, clean of skin, and with shallow eyes. The Admiral is a new white, round variety of very promising appearance. Exhibition Red Kidney is something like the old Crimson Beauty, but not so flat. Rouge Royale is another coloured variety, and is classed amongst the first earlies: some of these coloured tubers had been grown in Scotland, and others in Essex, and it was remarkable to notice the difference in the colour of the tubers from these different localities, those from Essex being much brighter in the skin. The two darkest Potatoes were Edgote Purple and Herd Laddie. The American variety Noroton Beauty is said to be an excellent cooker, and a first-class early Potato generally, but it has rather deep eyes. Most of the standard sorts were seen, including those excellent kinds, Myatt's Ashleaf and Duke of York. (Silver-gilt Banksian Medal.)

Some remarkably fine Potatoes were shown in a collection of vegetables from the gardens of Mrs. DENNISON, Little Gaddeston, Berkhamstead (gr. Mr. A. G. Gentle). The Potatoes were so excellent that the Committee granted a Cultural Commendation to the grower. The collection included about 35 varieties, the more notable being First Crop, Red Emperor, Monarch, Snowball, Snowdrop, and Longkeeper. Other vegetables in the exhibit included Red Elephant Carrot, Crimson Ball and Perfection Beets, Ailsa Craig and Record Onions, Holborn Model Leeks, and Jersey Lily Turnips. (Silver-gilt Knightian Medal.)

Messrs. SUTTON & SONS, Reading, showed Leeks and Onions as grown in their experimental ground. The best of the Leeks was Prizetaker, the next in order of merit being Royal and Favourite, Musselburg, Erfurt Winter, and French Carentan. There were also a few plants of the wild Leek. The Onions were not of the largest exhibition size, but they included good, solid, useful bulbs of Crimson Globe, A1, Red Rocca, Sutton Globe, Improved Reading, and Ailsa Craig. (Silver Banksian Medal.)

About 10 varieties of Brussels Sprouts raised from a late sowing were shown by Lady COWPER, Penshanger (gr. Mr. R. Staward). They were just ordinary stalks, brought to show the merits of the different varieties, which included Dalkeith Improved, Solidity, The Blair, Siberton Selected, Sutton's Matchless, Sutton's Exhibition, President Carnot and Rosebery.

ANNUAL MEETING.

This was held in the lecture room, and was well attended. The President, Sir Trevor Lawrence, K.C.V.O., referred to some of the items

in the Annual Report, which has been circulated amongst the Fellows, and was printed in our last issue. Referring to the membership, he said 109 new members had been enrolled since the Report was printed, making a total of 11,139. As an educational centre, Wisley had enjoyed great success. One of the students was top man in the Society's general examination, and Wisley had earned a grant of £265 from the Board of Education. He thought that in Mr. Chittenden they had the right man in the right place. It was satisfactory to know that in the matter of the Innes Bequest, the Council of the R.H.S. had a representative on the management, Sir Daniel Morris being the Society's nominee. During the year two portraits had been added to the Society's Gallery, those of Baron Schröder and Mr. Harry J. Veitch. Referring to the shows the President stated that through the generosity of Mary, Countess of Ilchester, Holland Park had been once more secured for the holding of the summer exhibition, but it was only on the distinct understanding that this should be the last occasion, at any rate, for the present. The Council had decided to hold the summer show of 1911 at Olympia, but as the event had to be regulated in the matter of date by the great military pageant which is annually held in that building, the date for the exhibition had not yet been fixed. It was hoped that the proposed International Show would take place in 1912, but the great difficulty is in the matter of securing a suitable site. Nothing had been settled, but they had approached Sir Geo. White for the use of the grounds attached to Chelsea Hospital. The Society had agreed to contribute a sum of £250 each year for three years towards the cost of bringing Pritzel's *Iconum Botanicarum* up to date. This work is a list of references to figures of plants, and is valuable alike to botanists and horticulturists.

The hall had entailed certain outlays, and they contemplated erecting an iron gallery around the roof for the safety of workmen in conducting operations connected with the roof. With regard to the Royal Botanic Society, there was nothing more to add to what had already appeared in the Press. The Society had sent deputations to several provincial shows, including the one at Gloucester.

It was considered that the management of the Lindley Library should be brought into closer touch with the Society, and, for that reason, an arrangement had been come to with the trustees by which the funds belonging to the library would be placed under the control of the Charity Commissioners. Last year a sum of between two and three hundred pounds was expended in the purchase of books.

They had good cause to be satisfied with the Society's financial condition, considering they had a surplus this year of over £7,000. He congratulated the Fellows on such a prosperous condition.

Mr. Gurney Fowler, in seconding the adoption of the Report, referred in detail to the financial statement. From the balance-sheet it would appear that there was a deficiency of about £217 compared with 1908. But against that must be credited items amounting to £509, including the cost of the new sounding-board for the hall, £39 15s.; portrait of Baron Schröder, £262 10s.; and bronze lamps and electric fitting, £206 15s., which have been placed to establishment charges. The receipts from subscriptions showed an increase of £968, and from dividends £350. The receipts from the Temple Show were smaller, but this was due partly to the larger number of Fellows (who do not pay for admission) and partly to the wet weather. In the case of the Holland Park Show the reverse was true; whereas in 1908 the receipts were £629, last year they amounted to £709. Although they had never made a profit from the summer shows, the deficiency last year was only £15. The sum of £150 had been set aside for the painting of the Hall in 1912, the estimate for the work being £450. The Society's invested funds amounted to nearly £50,000.

Mr. Arthur Sutton expressed his great satisfaction with the Report, every item of which was a record of good work.

Mr. H. J. Elwes asked for a clearer statement with regard to the position of the Lindley Library. With regard to Pritzel's work, he agreed that there was a necessity for an up-to-date revision, but he was informed that there were at least three annotated copies, and he sug-

gested a reprint of one of these rather than spending the large sum to which the Society proposed to contribute, in undertaking the work afresh. The question of the Royal Botanic Society had been before them for many years, and the correspondence did not lead anyone to suppose that the Council of the R.H.S. had any desire for amalgamation. There was one Society with great wealth doing much and another with no means doing little. If they could join forces the difficulty of finding a place for the R.H.S. shows would be solved once and for all. In this matter the Council had taken no means to ascertain the feeling of the Fellows.

The Rev. Joseph Jacob asked that someone might be appointed to act as "eyes and ears" when old books of horticultural value came into the market. He referred especially to old works on floriculture, which the library was particularly deficient in and which were becoming scarcer every year.

Sir Trevor Lawrence said, in answer to Mr. Elwes, that the difficulty in the matter of the Royal Botanic Society was that no proposal had been made by that body, but the R.H.S. had every desire to consider any suggestions the Royal Botanic Society might make. With regard to the library, the Lindley Trustees would disappear and the R.H.S. take their place, but the library would be held in trust in perpetuity and only the custody of the funds would be undertaken by the Charity Commissioners. In conclusion, he referred to the admirable manner in which the Society was served by its staff, and complimented the secretaries and the garden superintendents.

The election of the three members nominated for the Council and the presentation of Veitch Memorial Medals and Victoria Medals of Horticulture concluded the proceedings.

CHIEF OFFICER OF L.C.C. PARKS.

A SOLDIER APPOINTED.

FEBRUARY 8.—A meeting of the London County Council was held on this date, at the County Hall, Spring Gardens, Sir Melville Beachcroft (chairman) presiding.

On the appointment of a chief officer of the Parks Department, the General Purposes Committee reported to the Council as follows:—

The Council on November 30, 1909, authorised the issue of an advertisement inviting applications for the appointment, at a commencing salary of £600 a year, of chief officer of the parks department, vacated by the resignation of Lieut.-Col. J. J. Sexby, V.D. In response to this advertisement 95 applications were received and referred by us to the Parks and Open Spaces Committee for consideration, with a request that they would submit to us the names of not fewer than seven and not more than nine of the candidates whom they considered most suitable for appointment. Twelve candidates had an interview with the Parks Committee, who submitted to us the names of nine candidates, all of whom were seen by us, and one of whom subsequently withdrew his application. After careful consideration of the merits of each candidate we recommend the appointment of Major C. H. Enthoven, R.E. To comply with standing order No. 89, we submit three names as follows:—

Mr. A. J. Allsop.
Major C. H. Enthoven, R.E.
Mr. W. W. Pettigrew.

We recommend that, subject to his passing satisfactorily a medical examination, Major Charles Henfrey Enthoven, R.E., be appointed, as from a date to be hereafter determined, chief officer of the Parks Department, at a commencing salary of £600 a year; that the appointment be subject to the following conditions—that he do hold his office during the pleasure of the Council; that he be required to give his whole time to the duties of his office, and be not allowed to be directly or indirectly concerned in any other business than that of the Council; that any fees received by him, either as a witness or in any other capacity, be paid to the Council; that no fixed allowance be made to him for travelling expenses, but that he be repaid any such expenses as he may actually incur; that he shall not on retirement claim or be entitled to any retiring allowance under the Superannuation Act, 1866; and that he shall be subject to the Council's regulations in respect of the superannuation and provident fund.

The following advertisement was published in the Council's official *Gazette*:—

CHIEF OFFICER OF PARKS DEPARTMENT.

The Council invites applications for the appointment of chief officer of its Parks Department, who will be required to give his whole time and energies to the duties of his office. The person appointed will be responsible for the laying out and proper management of all the parks, gardens, and open spaces maintained by the Council, for the management of the conservatories and the horticultural and other buildings therein, and for the management and discipline of the staff employed in the Park service. A knowledge of survey-

ing, landscape gardening, forestry, and horticulture is desirable. The parks, gardens, and open spaces are at present in number 114, the aggregate area of which is about 5,100 acres, and the recreative arrangements for which the chief officer is responsible include gymnasiums, boating, game pitches, and bands. The staff employed numbers about 950. The person appointed will not be allowed to take any private business or other paid employment, and any fees received by him, either as a witness or in any other capacity, are to be paid to the Council. He must not be more than 45 years of age on December 1, 1909. The commencing salary attaching to the appointment is £600 a year. No fixed allowance will be made to him for travelling expenses, but he will be repaid any such expenses as he may actually incur.

Applications for the appointment must be on the official forms, which may be obtained from the Clerk of the London County Council, Spring Gardens, S.W. They should contain full particulars of age, qualifications, and experience, and should be accompanied by copies of not fewer than three testimonials as to character and fitness for the office, with special reference to the qualifications above mentioned. The latest time for receiving applications is 11 a.m. on Monday, January 17, 1910. Any form of application which is not fully filled up, or which in any respect fails to comply with the terms of the advertisement, will not be laid before the Council. The appointment will be subject to the successful candidate passing satisfactorily a medical examination by the Council's medical examiner.

On the motion for the adoption of the committee's recommendation—

Mr. J. D. Gilbert moved that the recommendation of the committee be referred back. He reminded the Council of two recent appointments of high officials which had been made. As regards that particular appointment, he said he wished especially to point out to the Council the peculiar way in which the name of the proposed official was brought up on that occasion. Before proceeding further, he wished most emphatically to say that he had no desire to utter a word in any shape or form against the gentleman who was recommended for that appointment, because he believed his testimonials were extremely good. At the same time, he did not think he was the candidate the General Purposes Committee should have recommended for the appointment. He, personally, was a member of the General Purposes Committee which considered the particular candidates for that appointment, and a week ago they interviewed nine gentlemen who had previously been interviewed and selected by a sub-committee of the Parks Committee, whose action had afterwards been endorsed by the Parks Committee itself. The Rev. F. Hastings, who was going to second his amendment, would inform the Council what actually took place at the Parks Committee. The General Purposes Committee saw and interviewed nine candidates sent up to them by the Parks Committee. After they had interviewed those candidates, one of them withdrew. They were favoured, at the General Purposes Committee, with the memorandum of the Parks Committee, who had arrived at a decision, after having interviewed the candidates, and sent up a recommendation, putting the candidates in the numerical order in which they thought they were fitted for the appointment. Of the first four names sent up by the Parks Committee not one was included in the names which the General Purposes Committee now submitted to the Council. It seemed to him that their recommendation was surely worthy of some consideration by the General Purposes Committee when they had their memorandum before them. Having drawn the attention of the Council to the wording of the advertisement for a chief officer of the Parks Department, Mr. Gilbert said, if they looked at the references and general qualifications of Major Enthoven, they would find that, with the exception of one subject, namely, surveying, he possessed no qualifications which brought him within the scope of the advertisement. It seemed to him that they had other gentlemen before the General Purposes Committee who had some, if not all, of the qualifications that the advertisement required. It seemed to him that the committee was going out of its way in order to recommend a gentleman who had only one of the qualifications which the advertisement required. Another strange thing about the appointment was this: the Parks Committee was asked whether anybody under their department was qualified for the appointment, and their reply, in the first instance, was in the negative, although, of the first four names the Parks Committee subsequently sent to the General Purposes Committee, two were the names of people in the employ of the Council—one under the Parks Committee, and the other gentleman in the service of another department of

the Council. It was a strange coincidence that, a month or so ago, the Parks Committee declared that they had no one fitted for promotion. He was not prepared to move the substitution of another name for the one recommended by the committee, but he did think that members on the other side owed to London some explanation of their procedure in recommending a gentleman not recommended by the Parks Committee, and, secondly, in recommending a gentleman who had practically none of the qualifications which the advertisement itself demanded of candidates applying for the post. Why had not the General Purposes Committee recommended one of the first three or four gentlemen recommended by the Parks Committee? In the circumstances, he moved the amendment, believing that the matter ought to go back to the committee for further consideration.

The Rev. F. Hastings, in seconding the amendment, said he thought it was a matter that ought to arouse considerable discussion. He held that the Parks Committee ought to know better than even the General Purposes Committee, and the chairman of the Parks Committee, Mr. George Alexander, was urged strongly to represent the feelings of that committee to the General Purposes Committee. They expressed a strong wish that a certain candidate who received 15 votes should be appointed. Later, Mr. Alexander seemed altogether to veer round, and to think that Major Enthoven was a very suitable man. *By the confessions of the Major before the Parks Committee, he knew nothing about landscape gardening, nothing about forestry, nothing about the laying out of parks, and nothing about making open spaces attractive.* What he knew about the purchase of land he (the speaker) did not know; he submitted very little. The applicant's confessions before the Parks Committee were alone sufficient to induce him to second the amendment for referring the recommendation back. For one thing, as Mr. Gilbert had already reminded them, there were men in their own employ who could have been appointed, and he would like certainly to suggest—"No, no!"—He knew he might not do that, but there was no necessity to go outside the Council for their chief officers. If they did this they cut off from those who served them the possibility of rising to the top-most positions under the Council, those positions apparently being won by good address, influential testimonials, and, he could not help saying so, by the favouritism of a certain section of the Council. Certainly, the applicant had all the bearing of a soldier, but, after all, the men engaged in the parks were not so obstreperous as to require a soldier to be over them. As a soldier, let him be preparing for war. When we are attacked by Germany, let him be prepared. One of the most damaging admissions the Major made was that he would have to depend upon his subordinates for his information in certain things, and especially technical things. Surely the General Purposes Committee did not want to thrust their views on the Council. He would only say that if they would not adopt that course they would be perpetrating a wrong, and that the perpetration of a wrong would come back not far hence. The matter had been discussed in the Press, and, he thought, rightly so.

Captain Swinton said he had been on the Parks Committee as long as any member of the Council. He fully admitted that Mr. Gilbert and Mr. Hastings were probably actuated by the very best motives, but he did not think that Mr. Gilbert's, and still less Mr. Hastings', speeches were quite the speeches which ought to have been heard on that occasion. In appointing a chief officer of the Parks Department what did they want? He asked the Council to consider that question. In the first place they did not necessarily want a gardener. What they wanted was the head of a great department. They would remember that the department controlled 114 parks, consisting of more than 5,000 acres, and that the cost of maintaining them was over £133,000 a year. It was one of the largest departments of the Council. What did its staff consist of? The outside staff consisted of 950 men approximately. Of those, 503 were gardeners and 320 were keepers maintaining the discipline in our parks. Then there were 18 superintendents and other servants, including 65 lavatory attendants. There was also the necessity for a clerical staff, and there were 25 clerks,

all of whom would be under this chief officer. It was a high position for a man to fill, and was comparable with the positions of the chief officers of the Royal parks. Now, apparently, what Mr. Gilbert and Mr. Hastings were striving after was a perfect man. He had to be young, but experienced in looking after a large staff; a man who could be responsible for a large expenditure and control a large staff. He would certainly have to be able to draft reports, and perhaps write treatises. He would probably be required to have an expert knowledge of trees, shrubs and plants, and must be a surveyor and qualified to lay out grounds, a land agent, and certainly a draughtsman. Such a man it would be absolutely impossible to find.

Mr. Gilbert: Have you seen the advertisement?

A certain section of the Press, went on the speaker, had said that certain qualifications were essential. The word used in the advertisement was "desirable." It was very desirable, if they could find such a man, that they should have him, but they were not going to find him. The next essential was that he should be capable of assuming the charge of a big business, which he would conduct systematically for the benefit of London. In the first place, the Parks Committee considered the matter on November 19, and sent up their report to the General Purposes Committee. In that statement they informed the General Purposes Committee that they were not prepared to recommend an officer of their department for the vacancy, and expressed the opinion that an advertisement should be issued. Then the advertisement was issued, and 95 gentlemen answered it. Some of them went very carefully through the whole list. He did for one, and, before the question arose, he personally had never heard the name of any single person who answered, and certainly not the three names which they were now considering. The sub-committee of the Parks Committee discussed the names and sent up 12, and then the main committee chose nine of them, as Mr. Hastings had stated. The consequence was that a certain section of those 12 dropped into the second place. Then the list went to the General Purposes, and they selected the three whose names were now before the Council. Major Enthoven happened to be an expert surveyor of a high class, and had had under his control large numbers of men. He personally had very carefully gone through all the names, and he had no hesitation in recommending Major Enthoven as the best man.

Mr. Hunter did not wish to say a word about the gentleman recommended. He was a gentleman of very high ability indeed; but he unhesitatingly declared that one of the members of their staff had a higher qualification for the post than any of the candidates mentioned that day. He had had 20 years experience, knew every detail of the work, and his qualifications generally were higher than those of any of the applicants they had before them that day. He differed strongly with some members of the Parks Committee that a military man was the only man who could control men. He took rather the view of Captain Swinton—that they wanted a man to manage a large business concern, but he would remind them that the largest business concerns in this country were not run by military men. If the gallant major were appointed, no one would work more loyally with him than he would, but, on the other hand, he did feel that they had a right to promote their own men, and he was very disappointed that men of their own staff had been put aside altogether. He was going to support the amendment, because his conscience dictated that to refer the matter back was the proper course. He wanted the best man, and he expressed the opinion that they had not got before them at present the best man with the best qualifications for the appointment.

Mr. Sanders strongly protested against the suggestion that on his side of the House there was any objection to an officer being appointed by the Council because he was a member of one of the Services. If they found that an officer of one of the Services would be the best fitted for the post they would be prepared to support him. That was the case in connection with the appointment of the head of the Fire Brigade, where an officer of his class of experience was desirable and almost necessary; but when they came to the question of parks there was no need whatever for military experience. Capt. Swinton seemed

to speak as if only persons in the military or naval service had any experience in directing large bodies of men. As a matter of fact, Mr. Hunter had pointed to their tramway staff, which required discipline, and who were under the control of a man who had had no experience in either the Army or Navy. But a word let drop by Capt. Swinton gave the key to the situation, when he said discipline was needed. He (Mr. Sanders) protested against that. The question before them had nothing whatever to do with discipline. They needed some one to keep order, exactly as the conductor of a tram had to keep order, and was not required to exercise military or naval discipline on the London public. The work required only the intelligence and common-sense displayed by the police, who were not members of the naval or military services. It was unfortunate that the question had arisen. This was the third time in which the appointment of a chief officer had been tainted with things which were not altogether pleasant. Here they had the General Purposes Committee saying they had made inquiries and that they found there was no person in their service qualified to take this position; but two of the names presented to the Council by the Parks Committee were those of their own servants, and these were set aside in favour of a military man who had no technical knowledge of anything connected with parks or open spaces. It was against that he protested.

Mr. George Alexander, as chairman of the Parks Committee, said they had to consider the applications from all classes of men at their disposal, and the main difficulty they had to surmount was that they had so many good men of different classes, but no one who possessed all the qualities and attributes for that particular post. He, therefore, supported what Capt. Swinton had said. He knew other names were submitted by the General Purposes Committee, but he felt sure if the Council saw fit to appoint Major Enthoven, that gentleman would prove himself worthy of their confidence. He would like to remind Mr. Gilbert that Major Enthoven was employed as an officer on lands and forests, so that he had some experience in those matters, and also that for 50 years the Royal parks had been managed by the Royal Engineers. If Major Enthoven were chosen, he was sure the Council would have no cause to regret their action.

Mr. Jesson supported the reference back and urged that their own men should be promoted where possible. There could be no doubt that Major Enthoven had made a deep impression upon Capt. Swinton. Capt. Swinton had practically made the running for Major Enthoven. Military men should not be appointed, especially when they had none of the qualifications required by the Council. The only qualification of this gentleman was that he knew a little forestry! Capt. Swinton said in a conversation that what the Parks Committee wanted was a man who understood discipline—a man who could control the staff. What was wanted, said Capt. Swinton, was such a man, and not one with any particular knowledge of the work, because he would have expert men under him.

Captain Swinton.—I did not say that discipline was the only thing required. I said it was a big business, and that we wanted a man capable of running a big business.

Mr. Jesson observed that Captain Swinton was still of the same opinion that a military man was the best for the position. After all, it was not a matter of convincing that Council, but of convincing the general public that it was best in their interests and in the interests of a large department that they should have a man who knew absolutely nothing about the subject except that he could control a staff of men! "I for one," said Mr. Jesson, "protest against that. I am sure, from my observation of three years on the Parks Committee, we have men who are equally as cultured as any who came before us; and I believe if we had another look round we should find someone in our own department able to undertake this position. Believing that the public would rather accept the idea of promoting our own staff, I have very great pleasure in supporting the recommendation to refer the matter back."

Mr. E. White (chairman of the General Purposes Committee) said it was a great misfortune that the subject had been raised. The Parks Committee distinctly stated that they had no

one whom they could recommend. "I was surprised," he said, "that that committee included in the list the names of two of our staff. That was rather an unwise course to pursue." It was rather a pity that these public appointments were discussed in the Press before they were discussed by the Council. It was greatly to be deprecated that these appointments were discussed as Party matters.

Mr. Hastings.—I did not deal with it as a Party matter.

Mr. White.—At all events, Mr. Hastings said it was due to the favouritism of some members. I entirely deny that there was any favouritism shown to any of the candidates. They came before my Committee, and I think I am not revealing any secrets in saying this. I simply asked them to establish their identity, and I asked every candidate to state himself what he considered his claims to the appointment. I put no leading questions. That was done in each case, and the inquiry was conducted without any manner of bias or favouritism being shown. Mr. Gilbert, in moving the reference back, has introduced a Party spirit, which too much pervades the discussions of this Council. I am in favour of promotion, and I should have been glad if an official of our own could have been recommended, but I cannot go behind the backs of the Parks Committee. They know more about the matter than I do. If this reference back is to be carried—and I do not think it will be—it will create a scandal in London.

Mr. Gilbert.—I mentioned no names.

Mr. White added that he was strongly opposed to referring the matter back. When, however, the list of names was brought before his committee, he thought they took an unusual course. He made no complaint. They arranged the names of the candidates in what they considered the order of qualification, instead of alphabetically, as usual, but in the voting that took place not one single word of protest was raised.

Mr. Gilbert.—We voted against it. What more could we do?

Mr. White said he did not then want to discuss the question of qualification. These matters had all been fully discussed. He took it that the names of the gentlemen submitted were names of men qualified to fill the post. All the names were strangers to him. Major Enthoven had a knowledge of engineering, and he was brought forward, not because he was a soldier, but because he was thought to be the best candidate.

Mr. Edward Smith said it was exceedingly unfortunate that the authorities should have filled an appointment of that kind in such a way, after their advertisement in which they laid stress, not upon discipline, but upon technical qualifications. After the Parks Committee said there was no one they could recommend, they recommended the names of two gentlemen, one of whom possessed the highest possible technical qualifications, and had been in connection with the parks for 20 years! If men were not qualified to do the work, their names should not be put forward. He hoped steps would be taken to prevent such an occurrence again.

The Rev. Stewart Headlam said that Captain Swinton seemed to think the Council should have a Royal Engineer to use the parks for military purposes. Up to the present, the parks had not been what they ought to have been. A great deal might be done to make the parks useful for our children in their Nature studies. For that they did not want a Royal Engineer. He hoped the matter would be referred back, in order that Major Enthoven might go to the post awaiting him at Cape Town!

Mr. Dominey regarded the discussion as terribly undignified. He begged the Council to put aside the question of Party, and to vote on the three names submitted.

Sir John Benn said he could only speak of what appeared on the surface. He ventured to think, looking at the facts before the Council, that the proposal to refer back was fully justified. He was not objecting to a competent man, because he was a military man, but because, when he saw the required qualifications, the gentleman proposed did not possess one of them. "So far as I can discover," said Sir John, "there is no urgency about this matter. The parks will not be closed unless we make this appointment, and yet the mystery about the whole thing is that we find urgency moved in order to bring the matter before the Council. I am not surprised

that that creates some suspicion that there is something behind this."

Captain Swinton explained that urgency was moved because Major Enthoven naturally desired to have the matter settled before he decided to go to South Africa.

Sir John Benn said there was no reason why the Council should be rushed, and, if it were, it would be a public scandal. It was one of the most extraordinary cases that he had met with in all his life of attempting to force a nomination through the Council.

Mr. Hunt contradicted Sir John Benn, and said that Major Enthoven possessed not only one but many of the qualifications. It was most unfair to a candidate that such observations should be made to that Council.

Sir John Benn said he should be exceedingly sorry to have done any injustice to the candidate, but he would really like to hear some one read out the qualifications of Major Enthoven for the post. He would willingly withdraw any suggestions which were unfounded.

Mr. Casson said Royal Engineers used to monopolise the appointments under the Local Government Board, but some few years ago that practice was altered, because it was found that Royal Engineers did not possess the necessary human qualifications. These were possessed rather by a civil than a military man.

It was then moved that the question be now put. There were for the motion 67 and against 40.

The motion to refer the matter back was defeated by 34 to 21.

A division was claimed when the voting was: for referring back 39, against 55.

The candidates were then voted upon. In the first round Mr. Pettigrew fell out. In the second round there voted—for Major Enthoven 41, for Mr. Allsop 24.

Major Enthoven's name was then put to the Council and met with cries of "Agreed."

The Major was then called in and congratulated by the chairman on his election.

Major Enthoven, in a very few words, returned thanks and assured the Council that the confidence shown in him would not be misplaced.

NATIONAL CHRYSANTHEMUM. ANNUAL MEETING.

FEBRUARY 7.—The annual general meeting of the above Society was held at Carr's Restaurant, Strand, on the above date, under the chairmanship of Sir Albert Kaye Rollit, LL.D., D.C.L., president of the Society.

The minutes of the last annual general meeting having been read and confirmed, the report of the executive committee on the work of the society during 1909 was presented. This was published in our last issue.

The president moved the adoption of the report and financial statement, which he described as a record of good work. Although only one exhibition had been held during 1909, it was a great success. The Award for Colour which the society had decided to inaugurate was one that would be much appreciated. He urged upon members the necessity of augmenting their numbers during the present year. The financial position of the Society was sound.

Mr. Thomas Bevan seconded the resolution, and the report was adopted unanimously.

Sir Albert Rollit was again elected president, and Mr. J. Green treasurer of the Society. The other officers were re-elected, including Messrs. T. Bevan and E. F. Hawes as chairman and vice-chairman respectively of the executive committee; Mr. C. Harman Payne, hon. foreign corresponding secretary, and Mr. R. A. Witty, general secretary.

The vacant places on the executive committee were filled by the election of Messrs. W. O. Hiehele, W. Howe, H. J. Kybert, J. B. Linford, J. W. Moorman, J. T. Simpson, E. F. Such, J. H. Witty, H. J. Jones, H. Farmer, F. Ladds, and W. Rogers.

The following gentlemen were elected corresponding members of the society: Messrs. C. H. Totty, U.S.A., T. Pockett, Australia, and R. Mommeja, France. Mr. J. H. Witty, who was vice-chairman of the executive committee for 18 years, was recommended to the executive committee for election as Honorary Member of the society.

MARKETS.

COVENT GARDEN, February 9.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us, regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia dealbata (mimosa), per doz. bunches...	9 0-12 0	Lilium album ...	1 6-2 0
Azalea, Ghent, per bunch ...	0 9-1 0	Lily of the Valley, p. dz. bunches ...	6 0-9 0
— Fielden, p. dz. ...	3 0-5 0	— extra quality ...	12 0-15 0
Bouvardia ...	6 0-8 0	Marguerites, p. dz. bunches white and yellow ...	3 0-4 0
Calla (see Richardia)		Mignonette, per dozen bunches ...	3 0-4 0
Carnations, p. doz. blooms, best American (var.) ...	2 0-3 0	Narcissus poeticus (Pheasant's Eye), per doz. bunches ...	4 0-5 0
Carola, and other special varieties ...	5 0-6 0	— Soleil d'Or ...	2 0-3 0
— second size ...	1 6-2 0	Odonotoglossum crispum, per dozen blooms ...	2 0-2 6
— smaller, per doz. bunches ...	12 0-18 0	Pelargoniums, show, per doz. bunches ...	4 0-6 0
Camellias, per doz. ...	1 6-2 6	— Zonal, double scarlet ...	6 0-8 0
Cattleyas, per doz. blooms ...	12 0-14 0	Richardia africana (Calla), p. doz. ...	3 0-5 0
Daffodils, best, per doz. bunches ...	5 0-8 0	Roses, 12 blooms, Niphetos ...	2 6-3 0
— seconds ...	4 0-6 0	— Bridesmaid ...	3 0-4 0
— double, per dz. bunches ...	4 0-5 0	— C. Testout ...	4 0-6 0
Enchans grandiflora, per dozen blooms ...	3 0-4 0	— Kaiserin A. Victoria ...	4 0-6 0
Freestias, per doz. bunches ...	1 6-2 0	— C. Mermet ...	3 0-4 0
Heather (white), per bunch ...	0 4-0 6	— Liberty ...	6 0-12 0
Hyacinths, Roman, per doz. bchs. ...	6 0-9 0	— Mme. Chateaufort ...	4 0-6 0
Lapageria alba, per dozen blooms ...	2 0-3 0	— Richmond ...	4 0-5 0
Lilac (Fruch.), p. bch. ...	3 0-4 0	— The Bride ...	2 0-4 0
Lilium auratum, per bunch ...	2 0-3 0	Spiraea, p. dz. bchs. ...	4 0-5 0
— longiflorum ...	4 0-6 0	Tuberose, per doz. bunches ...	3 0-4 0
— lancifolium rubrum ...	2 0-2 6	— Parma ...	4 0-5 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches ...	6 0-9 0	Ferns (French) ...	0 6-0 9
Asparagus plumosus, long trails, per doz. ...	8 0-12 0	Galax leaves, per doz. bunches ...	1 6-2 0
— medium, doz. bunches ...	12 0-18 0	Hardy foliage (various), per dozen bunches ...	3 0-9 0
— Sprenger ...	0 9-1 6	Ivy-leaves, bronze long trails per bundle ...	0 9-1 6
Berberis, per dozen bunches ...	2 6-3 0	— short green, per dz. bunches ...	1 6-2 0
Croton leaves, per bunch ...	9 0-12 0	Moss, per gross ...	1 0-5 0
Cycas leaves, each ...	1 0-2 0	Myrtle, dz. bchs. (English), small-leaved ...	4 0-6 0
Ferns, per dozen bunches (English) ...	2 0-3 0	— French ...	1 0-1 6
		Smilax, per dozen trails ...	6 0-8 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Ampelopsis Veitchii, per dozen ...	6 0-8 0	Euonymus, per dz., in pots ...	3 0-8 0
Aralia Sieboldi, p. dozen ...	5 0-8 0	— from the ground ...	3 0-6 0
— larger specimens ...	9 0-12 0	Ferns, in thumbs, per 100 ...	8 0-12 0
— Moseri ...	6 0-8 0	— in small and large pots ...	12 0-20 0
— larger plants ...	12 0-18 0	— in 48's, per dozen ...	4 0-6 0
Araucaria excelsa, per dozen ...	12 0-30 0	— choicer sorts ...	8 0-12 0
— large plants, each ...	3 6-5 0	— in 32's, per dozen ...	10 0-18 0
Aspidistras, p. dz., green ...	15 0-24 0	Ficus elastica, per dozen ...	9 0-12 0
— variegated ...	30 0-42 0	— repens, per dz. ...	6 0-8 0
Asparagus plumosus nazus, per dozen ...	9 0-15 0	Genistas, per dz. ...	8 0-10 0
— Sprenger ...	9 0-12 0	Grevilleas, per dz. ...	4 0-6 0
— tenuissimus ...	9 0-12 0	Hyacinths, per dz. pots, 3 in a pot ...	8 0-10 0
Azaleas, per doz. ...	30 0-42 0	Isolepis, per dozen ...	4 0-6 0
Begonia Gloire de Lorraine, p. dozen ...	12 0-18 0	kentia Belmore ana, per dozen ...	18 0-24 0
Cinerarias, per dozen ...	5 0-9 0	— Fosteriana, per dozen ...	18 0-30 0
Clematis, per doz. ...	8 0-9 0	Latania borbonica, per dozen ...	15 0-21 0
Cocos Weddelliana, per dozen ...	18 0-30 0	Lilium longiflorum, per dz. ...	24 0-36 0
Crotons, per dozen ...	18 0-30 0	— lancifolium, p. dozen ...	18 0-30 0
Cyclamen, per doz. ...	8 0-12 0	Lily of the Valley, per dozen ...	18 0-30 0
Cyperus alternifolius, dozen ...	4 0-5 0	Marguerites, white, per dozen ...	6 0-9 0
— laxus, per doz. ...	4 0-5 0	Mignonette, per dozen ...	6 0-8 0
Daffodils, per doz. ...	6 0-8 0	Selaginella, p. doz. ...	4 0-6 0
Dracenas, per dozen ...	9 0-24 0	Solanums, per doz. ...	6 0-9 0
Erica gracilis, per dozen ...	10 0-15 0	Spiraea japonica, per dozen ...	9 0-12 0
— hyemalis ...	9 0-15 0	Tulips in boxes, 24 bulbs ...	1 6-2 0
— melanthera ...	9 0-18 0	— doubles, in pots ...	12 0-18 0
— small plants (various) ...	3 0-5 0		

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples Newtown (U.S.), per barrel	29 0-35 0	Limes, per case	2 6-3 0
— (Nova Scotian), per barrel		Lichées, per box	1 6-1 9
— Baldwin	16 0-19 0	Nectarines (Cape), per box (24 to 28 fruits)	6 0-12 0
— Greening	14 0-18 0	Nuts, Almonds, p. bag	36 0-40 0
— Russett	17 0-22 0	— Brazils, new, per cwt.	32 0-36 0
— Fallawater	14 0-17 0	— Barcelona, per bag	32 0-34 0
— Ribston Pippin	14 0 15 0	— Cob, per lb.	0 3 0 3 4
— King of the Pippins	16 0-20 0	— Cocoa nuts, 100	10 0-14 0
— Ben Davis	16 0-19 0	— Walnuts (French), per bag	5 0-5 6
— (English), per bushel		— Chestnuts (Rodo- rian), per bag	5 0-6 0
— Annie Eliza- beth	5 0-6 0	— (Italian), per bag	14 0-15 0
— Allington Pip- pin	4 6-6 0	Oranges—	
— Newton Won- der	5 0-6 0	— Californian	
— Bramley's Seed- ling	5 0-7 0	— Navel, per box	11 0-12 0
— Lane's Prince Albert	5 0-6 0	— Jaffas, per box	8 0-10 0
— Cox's Orange Pippin, 4 sieve	5 0-8 0	— Dena, per case (420)	11 0-18 0
— Newtown Pip- pin, per case		— Valencia, per case (420)	10 0-15 0
— Oregon	10 0-13 0	— Jamaica, per case (176)	9 0-10 0
— Californian	7 6-9 6	— (200)	9 0-9 6
— British Colum- bia	12 0-18 0	— Messina Bit- ters, per box	3 6-4 6
— Mandarin, Florida, case		— Mandarin, Florida, case	12 0-13 0
Apricots (Cape), per box (15 to 28 fruits)	4 0-6 0	— per box	1 4-1 6
Bananas, bunch:		— Jamaica, p. case	10 0-11 0
— Doubles	10 0 —	— Tangerine, per box	0 9-1 0
— No. 1	8 0-10 0	— Seville Sours, per ½ chest	8 0-11 6
— Extra	8 0-10 0	Peaches (Cape), per box (15 to 28 fruits)	4 0-10 0
— Giant	9 0-11 0	Pears (Californian):	
— Red coloured	4 6-6 0	— Oregon Winter Nells, per case	11 0-15 0
— Red Doubles	8 0-9 0	— Easter Beurre, per case	8 0-9 0
— Jamaica	5 0-5 6	— (Cape), per box (24, 28, 32), Wil- liams Bon Chré- tien	5 0-6 0
— Loose, per dz.	0 6-1 0	— (Cape), Clapp's Favourites, per box	8 0-10 0
Cranberries, case	6 0-8 0	— D o u b l e layers	10 0-12 0
Custard Apples, p. dozen	9 0-15 0	Pineapples, each	2 6-5 0
Grape Fruit, case	9 0-12 0	Plums, Burbanks	2 6-3 6
Grapes, per lb.:		— (Cape), per box (15 to 28 fruits), Wickson	4 0-6 0
— Gros Colmar, A quality	2 0-3 0	— (Cape), Apple or Satsuma	8 0 15 0
— B quality	0 9-1 3	Strawberries, p. lb.	16 0-20 0
— Alicantes, A quality	1 9-2 6		
— B quality	1 0-1 3		
— Canon Hall, A quality	5 0-7 0		
— B quality	3 0-4 0		
— Gros Colmar (Belgian)	0 6-1 6		
— (Almeria), per barrel	14 0-20 0		
— p. 12 lb. baskets	5 0-7 0		
Lemons, box:			
— Palermo, 300	9 0-12 0		
— " 360	9 0-12 0		
— selected, case	13 0-16 6		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	1 6-1 9	Mushrooms, per lb.	0 8-1 0
— Jerusaleim, ½ sieve	0 9-1 0	— broilers	0 6-0 7
Asparagus, Paris Green, bundle	4 6-5 0	Mustard and Cress, per dozen pun.	1 0 —
— Sprue, bundle	0 9-0 11	Onions (Dutch), p. bag	3 6-4 0
Beans (English and Chan. Islands), per lb.	2 6 3 6	— pickling, per bushel	7 0-8 0
— Broad (French), per pad	5 6-6 6	— (Valencia), per case	6 0-7 6
— (Madeira), per basket (6 to 8 lbs.)	2 6-4 0	Parsley, ½ sieve	1 6 —
Beetroot, per bushel	1 6-1 9	Parsnips, per bag	1 6-3 0
Cabbages, p. tally	3 0-4 0	Peas (French), per jad	3 0-5 0
Cardoons (French), per dozen	8 0-10 0	Potatoes (Channel Islands), per lb.	0 4-0 6
Carrots (English), dozen bunches	2 9-3 0	— (Teneriffe), per cwt.	13 0-14 0
— per bag	3 0-3 6	Rhubarb (forced), doz. bundles	0 8-1 0
— unwashed	1 9-2 0	Radishes (French), per doz. bunches	1 3-1 6
Cauliflowers, tally	4 6-5 0	Savoys, per tally	4 0-5 0
— (Italian), basket	1 3-1 6	Seakale, per dozen punnets	12 0 14 0
Celeriac, per doz.	1 6-2 6	Spinach, ½ sieve	2 0-2 3
Celery, p. dz.	12 0-21 0	Sprouts, ½ sieve	1 3 1 6
— "Fans," per dz.	12 0-24 0	— per bag, 28 lbs.	1 9-2 0
Chicory, per lb.	0 2 4 0 3	Stachys tuberosa, per lb.	0 4 —
Cucumbers, p. doz.	7 0-9 0	Tomatoes	
Endive, per dozen	2 0-2 6	— (Teneriffe), per bundle	8 0 14 0
Horseradish, foreign, new, per bundle	1 0 1 6	Turnips, 12 bchs.	2 0-3 0
— 12 bundles	12 0-18 0	— logs	2 9-3 0
Leeks, 12 bundles	1 0-1 6	Turnip Tops, per bag	2 0-2 6
Lettuce (French), per dozen	1 6-1 9	Watercress, p. flat	4 0-6 6

REMARKS.—Shipments of Oranges are smaller and their prices have advanced, more especially for best quality fruits, with the exception of Mandarines. American Apples in barrels are selling more freely. The demand for Oregon and Californian Newtown Apples is not so good, except for finest samples, which are rather scarce. Fruit from the Cape is arriving in very large quantities, and prices generally are expected to fall considerably next week. The Grape trade is good. Supplies of Canon Hall Muscat will finish next week. Good samples of this variety being almost unobtainable. Red Bananas from the West Indies arrived this week in a good condition, but met with a slow demand. Cucum-

bers are a little cheaper, but both Celery and Seakale are dearer owing to the cold weather. Trade in green vegetables is about the same as last week. Trade generally is quiet. E. H. R., Covent Garden, Wednesday, February 9, 1910.

Potatoes.

	per cwt.		per cwt.
	s.d. s.d.		s.d. s.d.
Bedfords—		Lincolns—	
Up-to-Date	3 0-3 9	Up-to-Date	3 3-4 0
Blacklands	2 6-2 9	British Queen	3 3-3 9
Dunbars		Royal Kidney	2 6-3 0
Maincrop	5 6-5 9	Maincrop	4 0-4 8
Up-to-Date	4 3-5 0	King Edwards	3 0-3 6
Lincolns—		Kenis—	
Evergood	2 6-3 0	May Queen	3 0-3 6
Sharpe's Express	3 0-3 3	Up-to-Date	3 6-4 0

REMARKS.—Trade is very quiet and prices remain about the same. Recent consignments have been heavier than for the past two or three weeks. Edward J. Newbourn, Covent Garden and St. Pancras, February 9, 1910.

COVENT GARDEN FLOWER MARKET.

During the past week a few things have made higher prices, but, generally, there has been a stagnant trade. Roses of best quality have been scarce: blooms of Madame Abel Chatenay have made 12s. per dozen. There are some few things the prices for which vary little from week to week, but in the case of Roses, Lilliums, Callas, and a few other flowers the value fluctuates considerably. Daffodils are plentiful. They include Golden Spur, Sir Watkin, H. Irving, Princess, and Telamoni (double Van Sion). The Polyanthus Narcissus are also grown extensively for market. Of these the best blooms of Paper White have been scarce. The Scilly White, Soleil d'Or, and Gloriosa are all good. Narcissus poeticus is seen in large quantities. Carnations vary but little; the varieties Marmion and Carola make the highest prices. Mrs. Burnett is another that is in demand at higher prices than the ordinary American sorts. Rose Dorée is a very popular variety. Tulips continue to be over-plentiful, but at the end of last week they were making advanced prices. Lilliums were not of the best quality, but they were dear. Callas (Richardias) are a little cheaper, but they still make fairly good prices. Lily of the Valley during the past week has been rather over plentiful: the large supplies of Roman Hyacinth makes some difference in the demand for Lily of the Valley. The only hardy foliage seen is Ivy and Berberis. Smilax is good, also Asparagus: at this season the latter always makes advanced prices. A. Sprengeri is now one of the most popular of foliage plants.

POT PLANTS.

Indian Azakas (Rhododendrons) are the most showy subjects just now. The pink varieties, of which there are several, are most in demand: those with white flowers have sold well. Niobe is a favourite, and Deutche Perle is extensively grown. I have not noticed Narcissiflora, which was such a favourite for cut blooms a few years ago. Erica hyemalis is procurable, but the plants are not so well flowered as earlier in the season. E. melanthera is very pretty in tall, well-flowered plants. Genistas have not improved much in quality, owing to the cold weather. Cinerarias have also suffered from this cause, but some good plants are seen. Daffodils and Hyacinths in pots are very good. Some good double Tulips are coming into the market, but there are not so many of the single kinds in boxes. Cyclamens, Primulas, and Begonia Gloire de Lorraine are procurable. During the last week the latter have been very good. Mignonette is fairly good, but not equal to what will be seen a week or two later. The fogs cause the flower spikes to go "blind." A. H., Covent Garden, February 9, 1910.

LAW NOTE.

AN INJUNCTION GRANTED.

THE plaintiff in the action Thorpe v. Hall, a corn and seed merchant, of Birmingham, moved on Friday last, before Mr. Justice Neville, in the Chancery Division of the High Court, for an interim injunction to restrain the defendant, until the trial or further order, from selling certain Peas grown by him from the plaintiff's seed. Mr. Maxwell Thin, in support of the motion, said the injunction asked for was to restrain the defendant, his servants, or agents from selling, offering for sale, disposing of, or otherwise dealing in or parting with certain Pea seed known as "Bellthorpe's Prolific." By an agreement of February 10, 1906, the plaintiff supplied the defendant with seven quarts of Pea seed to be grown at his farm at Bloxham, and delivered to the plaintiff's order at Banbury Station. The plaintiff had specialised a Pea, which he called the "Bellthorpe's Prolific," and the agreement provided for the defendant growing seven quarts of those Peas on his land, and for the plaintiff purchasing the crop at a certain price. The plaintiff alleged that the defendant had not rendered to him the whole quantity grown, but had retained ten quarts for his own use. These he had sown, and from them had now on his farm three stacks of these Peas. It was very important to the plaintiff that the Peas should not be sold to anyone else, for, having acquired a reputation

for "Bellthorpe's Prolific," anyone else selling the same Pea would materially damage his business.

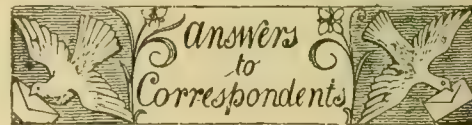
Mr. Northcote, for the defendant, said the season of 1907, being a bad one for Peas, it was agreed that the defendant should retain some of the Peas and sow them the next year, and this he did.

His Lordship said it seemed to him that there was no sale of the Peas to the defendant, but that they were merely handed to him for a special purpose. Whatever the rights of the parties were at the trial, he should have to grant an injunction if the defendant did not give an undertaking.

After some discussion, Mr. Northcote undertook not to part with the Peas to anyone but the plaintiff until the trial, on the plaintiff giving an undertaking in damages. This the plaintiff assented to, and no order was made upon the motion, except that costs should be costs in the action.

ENQUIRY.

WHAT are "Nurs gardens" in these passages? "Mulberries, Figs, Vines, Quoddings, Nurs-gardens, and some other kinds of trees," "Some kinds of Apple trees, as the Quodding, Nurs-garden, Moyle." I quote from Ra. Austen's *Observations* upon some part of Sir Francis Bacon's *Natural History*, 1658, an excellent little book, but rare. Austen was one of those who helped to lift botany and gardening from legendary guesses into the region of common-sense and practical experience. Henry L. Ellacombe, Bitton Vicarage, Bristol.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

CINERARIAS DYING: F. L. There is no disease present to account for the trouble. The plants have suffered some check, which has caused the death of the tissue about the margins of the leaves, and also affected the blooms. A chill or cold with excessive moisture would cause the browning of the leaves.

FLAME TREE: W. B. The Flame tree is Brachychiton acerifolium, a native of Australia, and allied to Sterculia. The flowers are bright red and produced on long stalks. In its native habitat it forms a tree of 60 or 100 feet high. This may be the tree you refer to as growing in the Channel Islands: send us a portion of the branch, so that we may identify it.

HYACINTH BULBS: Milland Place. The roots have been killed by the bulb mite, which is present in considerable numbers. Treat the soil in which the bulbs were planted with quicklime.

NAMES OF FRUITS: H. Henderson. 1, Mère de Ménage; 2, Peasgood's Nonesuch; 3, Uvedale's St. Germain.—T. E. W. Newtown Wonder.

NAMES OF PLANTS: J. J. G. A dark form of Iris reticulata histrioides.—Stanley N. Epi-phyllum Russellianum.—F. H. 1, Oncidium ampliatum; 2, Oncidium pulchellum; 3, Odon-toglossum blandum; 4, Pleurothallis Grobyi; 5, Bulbophyllum auricomum.—A. H. 1, Centradenia floribunda; 2, Eranthemum pulchellum; 3, Plumbago rosea.—Hants. Dendrobium Wardianum album.—W. E. 1, Eleagnus glabra variegata; 2, Cupressus thyoides variegata; 3, Cupressus Lawsoniana albo-spicata; 4, Cupressus obtusa nana; 5, Thuja occidentalis; 6, Pinus insignis.

Communications Received.—George T.—F. G. D.—Linnean Society—C. P.—F. M.—A. Gardner—H. W. W.—W. H. S.—W. R.—M. B. Java—J. T. W.—U. S. A.—Exhibition—Lancashire—E. A. D. W.—W. G. M.—S. A.—A. F.—I. S. E.—H. P. M.—D. & Sons—R. P.—A. D.—A. H.—W. W. P.—J. W.—B. G.—F. J. H.—J. D.—H. S.—R. P. B.—J. L. D.—F. W. C.—Reginald F.—A. P.—W. G. S.—C. P. D.—J. G.—H. J.—S. & S.—A. C. P.—J. V. G.—W. E. G.—J. C. W.—Berlin—Haarlem, D. R. W.—E. Noth—W. R. D.—R. B. S.—W. M. W.



REHMANNIA ANGULATA, FLOWERING IN THE GREENHOUSE AT KEW.

Photograph by C. P. Raffill.



THE Gardeners' Chronicle

No. 1,208.—SATURDAY, February 19, 1910.

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A FLOWER GARDEN FOR GENTLEMEN AND LADIES.

IN a previous article (see p. 33) mention was made of this treatise, and also that, owing to its having been republished with *The Flower Garden Display'd*, its authorship had been attributed to Sir Thomas More. It is a very short essay, extending to only 15 pages, and was first published in 1732. The first edition is, however, so rare that most collectors of gardening works have to be satisfied with the 1734 reprint. Sir Thomas's opportunities for gardening were of a very restricted nature; the space at his command being limited to his chamber and his "chamber window in the passage against the steeple of St. Bride's Church." Nevertheless, he was so pleased with his success and the success of his "improvements" that he was induced to print them for the sake of others in like circumstances. His first experiment was with early-flowering plants, the Crown Imperial, Tulips, Hyacinths, Anemones, Polyanthi, Narcissi, double Daffodils, Crocuses, Snowdrops, Hepaticas, and Fritillarias. For these he had special basins manufactured, 18 inches wide by 12 inches deep, and the various plants above mentioned were arranged therein. Before Twelfth Day (about January 17), the Crocuses and

Snowdrops were in flower, and were followed by the Daffodils and the others in succession, the Hyacinths "lasting in bloom till the middle of March." During the summer he cultivated annuals, "double African (Marigolds), Marvel of Peru, Capsicum, Cockscomb, Amaranthus, Orange Mint, and other variegated herbs." These were cultivated in soil. But he had read and heard how plants required only water to fulfil their functions. Accordingly he "resolved to attempt as early Productions by the Effects of Water only—which would be a much neater and Cleanlier Way, and might be more acceptable to the Curious of the Fair Sex, who must be highly pleased to see a Garden Growing, and exposing all the Beauties of its Spring Flowers, with the most delicious Perfumes in their Chambers or Parlours." So he bought some dozens of flint tumblers—glasses, and, will it be credited! they were of German manufacture, and chosen because they were "cut prettily and Cheap." Then he got corks to fit the several tumblers and in the corks he cut holes, so that the roots of the bulbs which rested thereon could pass through to the water. Thames water he considered "the best, as being strongly impregnated with prolific Matter." The production of roots delighted him exceedingly, or, in his own words, it "was a most diverting Pleasure to behold." The water proved successful, too, in that he had "Polyanthus Narcissus blowing out in perfection before Christmas Day," and he had also Persian Irises three days before Christmas, and he remarks with pardonable pride that "this early Production will supply the curious Ladies with most agreeable perfumes for their Chambers, Parlours, &c., and with Nosegays to adorn their Bosom at Christmas, when they dress their Houses with other Greens." Following some moralising on planetary influences, and the deleterious qualities of smoke which he considered to have been much over-estimated, he turned to the production of "young Sallets" in large glass basins fitted with corks, and filled with the all-important Thames water, which, however, he proposed to meliorate with a solution derived from Melon earth dissolved in water, which being allowed to settle was decanted for use when quite clear. Twelve basins were required to ensure a succession of salletting, one basin making "a pretty little Sallet, which you may increase very agreeably by buying the small, hard Cabbages which are sold in the Markets all the Winter and are the Sprouts shot after the great Cabbages are cut off." He added also "Horse Radish Roots finely scraped." He cultivated Parsley also all the winter in the same way, and added to his Christmas flowers, Double Daisies, red and white Primroses, and strip'd Polyanthus, but failed with Auriculas.

Like all reformers, he was greatly optimistic. "What," he remarks, "a pleasant Diversion must this give as well as save much Charge; there will be no need of the Expence of a Gardener, nor the making of Hot-beds, nor the Carpenter's Work for Frames, nor the Glaziers for lights to these Frames, nor the attendance on them with Mats, &c., only a few Basins, a little Cork, and good Thames Water, with the Garden Sallet Seed." We are not a little indebted to the honourable baronet for the sidelights he throws on social life at the period he wrote. It is clear that flowers were extremely rare, if at all obtainable in the dead of winter, and young salading equally so, though, of course, we know that in the gardens of the wealthy these were not unusual. The Cabbage sprouts

are not, as some might suppose, Brussels Sprouts, but in all probability the sprouts which form freely on Drumhead Cabbages, and which, I am afraid, are never utilised in these days. Were some enterprising individual to reintroduce basins and corks with water for the house culture of bulbous plants, it is surely not too much to expect that many would entertain the novelty with pleasure, not only for the sake of the "Diversion," but also because of the facility with which groups of selected plants could be flowered in apartments in the dead of winter and early spring. R. P. Brotherston.

HARDY WINTER FLOWERS.

THE number of hardy herbaceous plants that produce their flowers in spite of the unfavourable conditions obtainable during the mid-winter months is comparatively few. Even these are very liable to injury and seldom look happy in their surroundings.

First and foremost among those in bloom at Kew are the beautiful Christmas Roses (*Helleborus niger* and its varieties). These have produced a good display for a long time in the Fern border which skirts the wild garden near the Cumberland Gate. The Christmas Rose is well worth planting extensively in sheltered and half-shady borders, where it may be successfully grouped amongst hardy Ferns. In such a place it will receive the necessary moisture during the growing period. One great drawback is that the delicate white flowers are very susceptible to injury when fully exposed to all weathers, and to have them in perfect condition it is necessary to place a handlight or other glass covering over them while in flower. Where possible, this is well worth doing, for then the flowers are preserved for a longer period than when unprotected. Many forms of *Helleborus niger* have received varietal names, and the varieties vary in time of flower from October to March. One of the best is *H. n. var. altifolius*, a tall-growing form with large, handsome foliage, which commences to flower in November and lasts well over Christmas. The large, white flowers have their petals tinged with rose on the outside, and are sometimes 5 inches in diameter. *H. n. angustifolia* is dwarfier in habit, with narrow leaves and smaller flowers, and is one of the earliest in bloom. Between these extreme forms there are many which have received distinctive names, such as *Mme. Fourcade*, a late-flowering variety, which usually retains its foliage well, and the Bath variety *H. n. var. major*, which is at its best about the end of the year.

Another member of the genus quite distinct in habit and appearance from the Christmas Rose is the Corsican Hellebore (*H. corsicus*), which flowers all through the winter. It forms a handsome, shrub-like plant, with stems about 2½ feet high, clothed with bold foliage, and bearing at the top numerous, light-green flowers. The stems are produced annually during the summer, but persist with their foliage right through the winter. It is an effective subject for the Fern border or wild garden on account of its foliage alone, although the flowers may not be attractive to many. Other Hellebores in flower are the pale green *H. caucasicus*, and the sweet-scented *H. odorus*, with its light green and dull purple flowered varieties.

Early in January the Manchurian Adonis (*A. amurensis*) commences to push up its flowers, which are often fully open in the beginning of February. It is a most welcome addition to the limited number of winter-flowering plants outside. Frost and snow appears to injure the flowers very little in the bud stage, and they soon expand in congenial weather. Easy to grow and quite hardy, *A. amurensis* has become a popular plant with its handsome Davallia-like

leaves, and large golden-yellow flowers, each about 3 inches in diameter when fully expanded. The double variety of this plant comes into flower a good deal later than the type.

In the Fern border, round about the bases of some Elm trees, may be seen several groups of the charming little winter-flowering *Cyclamen ibericum*. This Caucasian species, with its pale zoned leaves and rose-coloured flowers, is the first in flower, but is closely followed by the green-leaved *C. coum*. Of the two species, the former is the more robust, with larger flowers more freely produced. Given a well-selected position, somewhat dry and sheltered, and left undisturbed, these hardy *Cyclamen* soon become established and form increasing colonies, producing their flowers freely at a time when they are doubly welcome.

On a warm south border representatives of the beautiful Iris family are in flower. Close up against the wall is *I. unguicularis* (perhaps better known as *I. stylosa*), which, during a short spell of mild weather, will open its fragrant flowers, which are almost hidden amongst the evergreen foliage. With protection, this plant will give a continuous supply of beautiful flowers for cutting. There are several varieties of different shades of colour, one being pure white. Belonging to the bulbous section is *I. Histro*, with its light purple and spotted flowers. There is also a charming group of *I. reticulata* var. *histrioides*, with rich purple flowers, *I. r. sophenensis*, and stray flowers of the yellow *I. Danfordiæ*, as well as the purple *I. Tauri*.

Early in February the Winter Aconite (*Eranthis hyemalis*) displays its frilled flowers, forming a golden carpet when planted between deciduous shrubs. The Snowdrops also are beginning to appear, coming up rapidly during the spells of mild weather. First to come is *G. Elwesii* (see also p. —), which of late years has been imported so largely from Asia Minor, and is undoubtedly the finest of all when well grown. In elegance, however, it does not compare with our dainty little native species *G. nivalis*, which is also showing its flowers.

Colchicums are represented by the Syrian *C. libanoticum*, which has been in flower all through January. It is only a few inches high, with pale purple or rose-coloured flowers. Of Crocuses many are pushing up, including *C. Imperati*, *C. Sieberi*, and *C. biflorus*. W. I.

CRINUM PURPURASCENS.

THIS elegant flowering plant (see fig. 53) received an Award of Merit when shown by Sir Trevor Lawrence, Bart., at the last meeting of the Royal Horticultural Society, as described on p. 107. It is a native of tropical Africa, being found wild in the regions of Fernando Po and Old Calabar, and has been for some considerable time in cultivation in this country, although it is by no means common in gardens. The bulb is relatively a small one, being about 2 inches in diameter. This sends up about 20 or 30 narrow leaves with wavy margins, the undulations being most marked at the base. The flower-spike carries an umbel of ten or a dozen blooms, each with a long tube and narrow, whitish segments. The whole inflorescence is tinged with red, and even the white florets show a staining of red down their centres. The stamens also are red, and form conspicuous objects with their linear, basifixed anthers, each $\frac{1}{2}$ inch long.

Mr. Bain, the gardener, informs us that the plant flowers twice a year at Burford. In the winter it is grown in a plant stove, and in the summer in a greenhouse in full exposure to the sun. There is an illustration of *Crinum purpurascens* in the *Bot. Mag.*, t. 6525, but the margins of the leaves are there shown much more crenulated, and the flowers much paler, than in Sir Trevor Lawrence's specimen.

NOTICES OF BOOKS.

THE DAHLEM BOTANIC GARDEN.*

SUCH is the official designation of the garden which replaces the old one in Berlin, and, under the title given below, the German Ministry for Ecclesiastical, Educational, and Medicinal Affairs has issued an elaborately illustrated account of Prussia's new botanical establishment, the joint production of Dr. Engler, Dr. Urban, and their assistants. Much of the matter has appeared from time to time since the commencement of the work in the autumn of 1897, and some sections of it in greater detail than in this book. Some of

ning, the authorities were unhampered either by existing buildings that had to be utilised, or by groves of trees that could not be sacrificed. The area is about 100 acres, and all the buildings, plantations, and other details of the original general plan, now practically completed, are very fully described and illustrated in the publication in question, which should find a place in every horticultural and botanical library of any pretension. The principal headings are: "Tasks of the Larger Botanical Establishments," with special reference to the one at Dahlem; "A Short History of the Dahlem Collections"; "The Open-air Plantations"; "Description of the Plant-houses"; "Description of



FIG. 53.—CRINUM PURPURASCENS.

[Photograph by Jno. Gregory.]

(Exhibited by Sir Trevor Lawrence, Bart., at the R.H.S. meeting on February 8.)

the most interesting particulars have been reproduced in the *Gardeners' Chronicle* at various dates, notably in the number for August 28, 1909, and Mr. J. G. Watson's descriptions in May 23 and 30, and June 6, 1908.

The Dahlem establishment differs so entirely from that of Kew that comparison of the one with the other is difficult. In the first place, it is wholly educational, and, in the plan-

the Museum"; "Description of the Lecture-halls and Laboratories"; "Details of the Cost of the New Establishment"; Conditions under which the Collections may be Used by Visitors"; "Summary of the Lectures and Demonstrations given during the Current Term"; &c. The scientific staff consists of 15 members, all male, all holding the degree of doctor, and eight of them bear the additional title of professor. Between them these professors give, during the year, upwards of 30 courses of lectures in the various branches of botany. W. B. H.

* Der Königliche Botanische Garten und das Königliche Botanische Museum zu Dahlem. Quarto, pp. 158, with numerous full-page illustrations and plans. (London: Williams & Norgate.) 1909.

THE ORIGIN OF SOME NEW HYBRID FREESIAS.

A FEW weeks ago Mr. Hoog, of Haarlem, published an article on hybrid Freesias in *Die Garten Welt*. As it appeared to have great interest for readers of the *Gardeners' Chronicle*, I obtained permission from Mr. Hoog to translate the article and make a few alterations and additions to the original text. Therefore, the following is not an exact translation from the German.

It is always very pleasant to be able to give new shades of colour to a very popular flower, either through the importation of new forms or through hybridisation with other varieties, but especially when the new colours obtained are fashionable ones, such as pure soft pink, mauve, or yellow, which soon find their way into the gardens of all lovers of flowers. These remarks are specially applicable to the new forms of Freesia recently distributed under the names of *F. Tubergenii*, *F. Tubergenii Amethyst*, and *F. Chapmanii*, which have attracted special attention at the London spring flower shows during the last three or four years. These novelties are of robust habit of growth, and are as easy to grow successfully as the ordinary *F. alba*. I, therefore, give an account of the origin of these new varieties. In 1901 a friend, named Armstrong, living in South Africa, sent me some bulbs of Freesia, which he said were pink. This interested me greatly, as the varieties we had received hitherto had been exclusively white or shades of yellow. The species known as *F. aurea* is not worth considering here, as it has no place in the trade and is only found in a few private gardens. The new bulbs received from my friend I named *F. Armstrongii*, and, when they bloomed towards the end of spring, they proved to be quite distinct from all others known to me. They seemed to be rather weaker in growth than other Freesias, with smaller and more graceful foliage; they were also taller in stature. They had as many as nine to eleven flowers on the main stem and from six to eight on the laterals. The flowers were smaller than those of other Freesias, but were of a lovely carmine pink, and it immediately occurred to me to try to effect a cross between them and a selected form of *F. alba*, with large, pure white flowers. Accordingly *F. alba* was chosen as the seed bearer and fertilised with the pollen of *F. Armstrongii*. The seed set very freely, and germinated well when sown, but none of the seedlings flowered till their second year. Then the result exceeded all my expectations, the flowers showing the most lovely gradations of colour from deep carmine to a soft pink. They also plainly showed, in their increased size, the influence of the larger-flowered female parent. I had much difficulty in selecting those worth naming, but ultimately decided that the deepest shades were the most uncommon and best worth bringing under the notice of the public. I gave these as a class the name of *Freesia Tubergenii*. One of these seedlings was awarded the gold medal of the Haarlem Society at its great quinquennial exhibition about five years ago as the best new plant in the show, and the stock of it has passed into the hands of Messrs. Barr & Sons, of London, who are now distributing it under the name of *Freesia Rose Queen*. It was also given an Award of Merit at one of the meetings of the R.H.S. Further experiments with *F. refracta*, *F. alba*, *F. Leichtlinii*, and *F. Tubergenii* were very satisfactory, but it was only natural that hybrids from so many beautiful varieties should show some new shades of colour. I had again great difficulty in selecting, but ultimately chose one which was different from all the others. It was much stronger and stouter in growth, the flowers were mauve, and it was given the name of *Amethyst*; it was exhibited in London and received an Award of Merit from the Royal Horticultural Society. Amongst the most striking of the new colours, I must mention specially one out of the second

generation which has flowers of a fine clear Myosotis blue; another is a deep orange-yellow, and another, a copper colour. This new race of Freesia is much better for cutting than the older varieties, *Leichtlinii*, *alba*, and others, because the stems are longer and stronger. One English-raised seedling, under the name of *F. Chapmanii*, has been sent out by Mr. Herbert Chapman, of Rye, Sussex. It has pure yellow flowers, smaller than those of *F. alba*, which, with *F. aurea*, are its parents. *W. E. Gumbleton*.

GLOXINIAS.

PREPARATIONS for an early supply of these flowers may now be made. The tubers which have been resting may be shaken out of the pots in which they grew last season, with a view to selecting the largest and best-matured for starting into growth. Procure some shallow seed-boxes, and fill these with a mixture of fine leaf-mould and silver-sand, and plant the tubers closely together, just covering them with the soil. Place them in a warm, moist house, and syringe them daily, in order to induce them to start into growth. The shoots need to be as sturdy as possible, and for this reason the boxes should occupy a position where the plants will receive plenty of light. Some growers prefer to pot the tubers straight into the flowering pots; but there is not much to be gained by doing this. The size of the pot should be regulated by the size and strength of the tuber, and this especially applies to the first potting. Well wash the pots and dry them before they are required. See that the material for drainage is ample and properly placed, and then cover the crocks with fibrous turf placed grass-side downwards. Perfect drainage is essential in the culture of Gloxinias. A mixture of one part fibrous loam, one part rough peat, and two parts leaf-soil and well-decayed manure from a spent hot-bed, with a good sprinkling of sand and half-inch charcoal, will form a suitable rooting medium. After the compost has been thoroughly mixed together, and warmed to the temperature of the atmosphere of the house in which they are growing, it will be ready for use. If possible, the plants should be potted in the plant house, and not in the potting shed, so as not to run the risk of a check from cold winds or a lower temperature. Pot them firmly, but not too hard, just covering the bulb with the soil: afford a sprinkling of silver sand over the surface. If the soil is moist no water will be required for a few days after potting, but the syringe should be freely used and the staging between the pots damped. When watering is necessary employ a fine-rose can, soaking the soil thoroughly. As soon as the pots are well filled with roots, shift the plants into their flowering pots, taking care not to break the foliage. A compost similar to that used before will answer well, but it should be used in a slightly rougher condition, and mixed with a little artificial manure. When potted, place the plants where they can obtain plenty of heat and moisture, and yet be shaded from strong sunshine. Water the soil after potting, and also frequently damp the spaces between the pots until the flowers appear, when a somewhat drier atmosphere should be maintained, but keep the paths and walls well damped, as Gloxinias do not like excessive dryness. When the pots become filled with roots, a weekly application of weak manure water may be given, and, occasionally, a little artificial manure. A temperature of 65° at night, and 75° or 80° in the daytime will be best when the plants are growing freely, but when they are in flower a cooler and drier atmosphere should be maintained. Air should be admitted sparingly on mild, sunny days through the ventilators at the top of the house. Remove any decaying blooms, and when the plants are in full flower use only clear water. When the plants have finished flowering they may be removed to make room for another batch.

The best place to ripen the tubers is a frame on a half-spent hot-bed, shading the plants from strong sunshine. Afford water carefully, and once a week give weak manure water. When the growths have died down, gradually withhold water, and later allow the plants to dry off. A few seeds should be sown each spring, so that a batch of young plants may be raised to take the place of the oldest ones.

Gloxinias require plenty of heat and moisture, shade from sunshine, a rich, open, light soil, and unremitting attention in the matter of watering and ventilating. *R. Thatcher, Wistow Gardens, Leicester*.

NOTES FROM A "FRENCH" GARDEN.

THE Radishes sown early in January are now ready for pulling. They are gathered at intervals of two or three times each week, according to the growth of the Lettuces. The bunching must be done carefully owing to the tenderness of the foliage. The roots are always washed before they are packed for market. The bunches must not be left overnight after washing them, as the roots wither very quickly.

Seeds of Radishes are now sown in the open every week. The growth of the seedlings will be very rapid if the seeds are sown on a thick layer of well-decayed manure. When grown for market purposes, it is preferable to sow Radishes by themselves, as the bunching can be done on the ground where they have been grown.

The Lettuces "Little Gott," in the frames, have grown splendidly, and are forming fine heads. The removal of decayed leaves must be done frequently and carefully during this month.

The Carrots are now showing their first leaves. Where they have been sown thickly, the thinning must be done without delay, as disturbance later will cause those that are left to produce a lot of fibrous rootlets.

All the Cos Lettuces have now been planted under and betwixt the cloches, the latter being set deeper and firmer. In the beds where the fermentation of the manure has started, and where the Cos Lettuces under the cloches have spread their leaves, a small aperture is made whenever necessary, either with the closed fist or with a wooden block 3 inches wide under the rim of each side of the cloche. This opening is essential if strong and sturdy plants are to be obtained.

The paths between the beds of cloches are filled up with very short manure level with the beds, to facilitate access to the plants, and the shifting of the cloches later in the season.

The mats are spread over the cloches at night-time: (1) in case of frost, and (2) to prevent a sudden lowering of the temperature after a warm day.

The first batch of Melons (*Cantaloupe Prescott*) has been sown this week in a frame. The manure bed is 2 feet thick, and the frame is lined with fresh manure. The seeds have been inserted 1 inch apart in boxes. The seeds may be sown in a greenhouse, but a hot-bed gives better results after the plants are potted into 60's. We are now collecting one-third of the manure for the making of the beds for the final quarter of the Melons. The quantity of manure required for 400 lights of Melons is 90 tons.

We have sown seeds of Endive in the Melon-bed. The variety grown this season is "La Parisienne," which is smaller, but earlier, than "La Rouennaise." In ordinary ground this latter stronger-growing sort would be preferable.

In the bed made for the Cauliflowers we have sown seeds of Celery Chemin for marketing in August. The seedlings will be pricked out under glass and planted out late in May. The self-bleaching varieties are the only sorts suitable for an early crop, as red Celery runs to seed readily when sown early. *P. Aquatias*.

ERLANGEA TOMENTOSA.

TWENTY years ago only one species of *Erlangea* was known to science, namely, *E. plumosa*, from Gaboon in Tropical Africa, and that was described from a dried herbarium specimen. At the present time there are at least 32 species recorded, of which several have been separated

from *Vernonia*, to which the genus is closely allied, differing only by having fewer ribs on the fruit and a pappus reduced to a few short hairs, that fall away early. All the species, except one from New Guinea, are natives of Africa. *E. tomentosa* (see figs. 54 and 55) was shown by Messrs. James Veitch & Sons, Ltd., at the meeting of the Royal Horticultural Society on

January 11, when the Floral Committee conferred on it an Award of Merit. There are also numerous plants of *E. tomentosa* in full bloom at the present time in the greenhouse at Kew. The species is figured in the *Botanical Magazine*, t. 8269, from plants presented to Kew Gardens in April, 1907, by Mr. R. Diespecker, Adstock House,

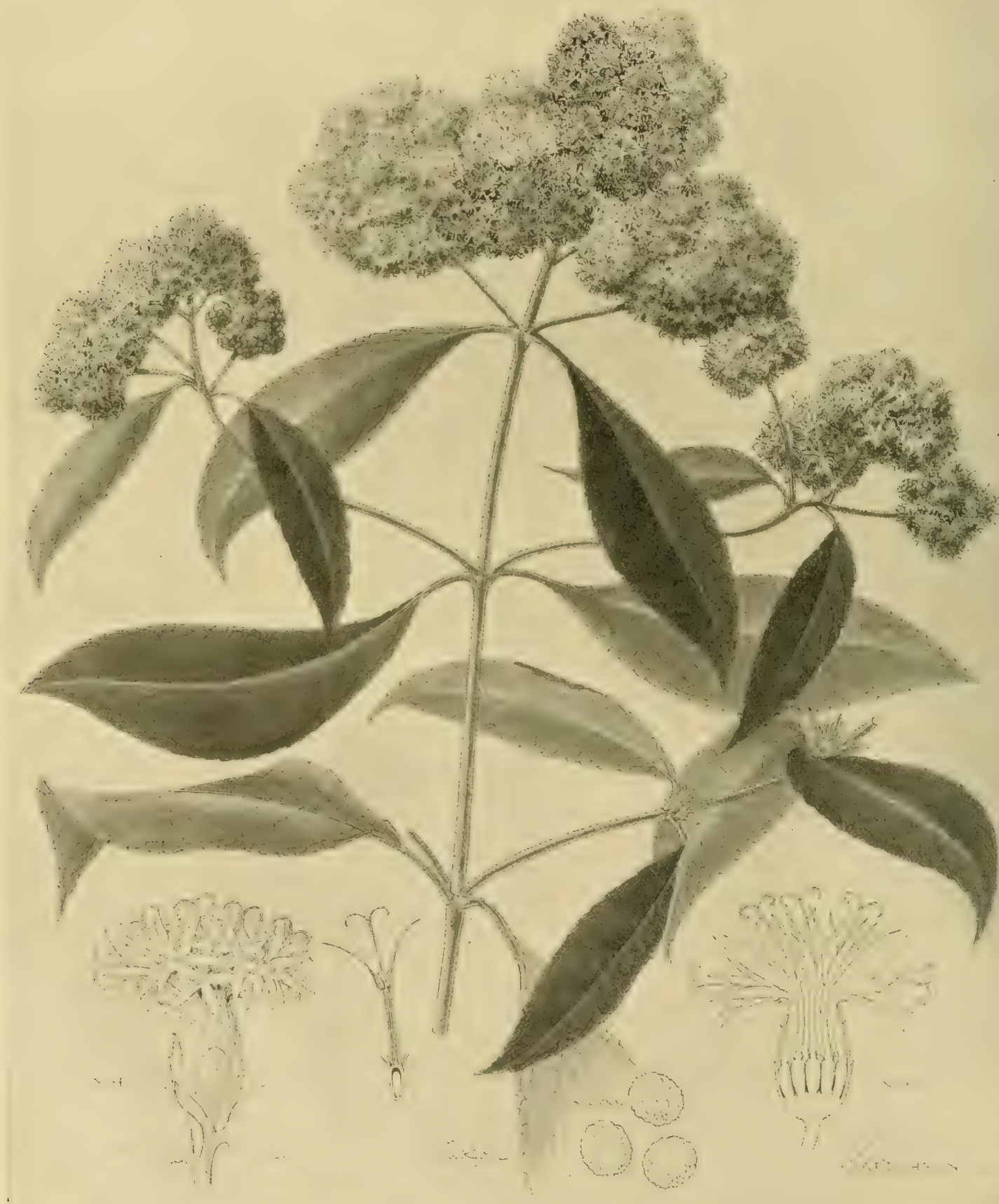


FIG. 54.—ERLANGEA TOMENTOSA: COLOUR OF FLOWERS PALE BLUE.

(Exhibited by Messrs. James Veitch & Sons.)

Winslow, who raised them from seeds received from British East Africa. *Erlangea tomentosa* forms a bushy shrub in its habitat, flowering freely when from 2 feet to 5 feet high. It is allied to *E. fusca*, but differs in the leaves, which are of a bright green above, the cymes of flowers being tomentose and the bracts of the heads scarious at the margins. The leaves also are white, with tomentum beneath, lanceolate and alternate, opposite or in whorls of three, and form a fine setting for the large cymes of light-blue flowers, which are produced during winter and spring. The plant greatly resembles a *Eupa-*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM ACTÆUS VARIETIES.

A LARGE number of plants of this cross between *C. insigne* and *C. Leeanum* (*insigne* × *Spicerianum*) are in flower with Mr. H. A. Tracy, Amyand Park Road, Twickenham, and are noteworthy on account of the extraordinary variation in the flowers, some of which are remarkably good, while others are of indifferent quality. The colour of three plants called variety *punctatum* is yellow, with the upper half of the dorsal sepal

hybrids of *C. Beekmannii* and *C. aureum* and others are also in bloom, the *C. Little Gem* (*Harrisianum* × *Baron Schröder*), raised by Messrs. Jas. Veitch & Sons, being a finely-formed flower, having the lower sepals expanded and coloured rose, as in the upper sepal, a peculiarity which most of the varieties of this cross which have yet flowered exhibit in some degree, and suggest that the next evolution might develop a strain in which the dorsal and the lower sepals will be nearly equal in size and showiness.

EULOPHIA LURIDA.

THIS pretty, though not showy, species is flowering in the gardens of the Hon. N. Charles Rothschild, Ashton Wold, Oundle (gr. Mr. C. Wright), who kindly forwards an inflorescence taken from a plant collected by Dr. Wollaston on the Lower Congo. The plant, which has brownish pseudo-bulbs furnished with lanceolate leaves, in growth resembles a small *Cymbidium giganteum*. The branched spikes bear numerous flowers, each about half-an-inch across. The sepals are reddish chocolate at the back and tinged with green on the inner surface, the petals being yellowish with a slight reddish tip, and a line of the same colour down the back. The lip is yellow, and the spur nearly as long as the lip and curved forward, flattened and slightly divided at the apex, reddish brown in colour.

The genus *Eulophia* embraces several very distinct classes, which exhibit very diverse types of growth, but agree in the form of their flowers. The present plant, which was imported from Central Africa, the Madagascar *E. Scripta*, and some others, are all epiphytes and resemble *Cymbidiums* in growth. Another section, with terete pseudo-bulbs often a foot in height, includes *E. pulchra*, *E. macrostachya*, and others distributed in Java, Ceylon, Madagascar and Africa. A third section has curiously-flattened underground tubers progressing chainwise. These, which include *E. barbata*, *E. Dregeana*, *E. ensata*, and many others, are widely distributed from the Cape through tropical Africa, *E. guineensis*, with large rose-pink labellum, being one of the prettiest. The line of demarcation between *Eulophia* and *Lissochilus* at some points is not very clearly defined, the South African *Eulophia streptopetala* (*Lindl. Bot. Reg.*, t. 1002) having to the casual observer little to distinguish it from *Lissochilus Krebsii*.

The epiphytic species and those with pseudo-bulbs produced above the ground are easy plants to cultivate if they are placed in houses of a temperature about the same as that of their habitats, but the underground species with flattened tubers are more difficult to manage successfully, their decline being probably caused by neglect to give them a long, dry rest on a warm shelf. If subjected to too low a temperature when resting they frequently lose the growth-buds necessary to form new tubers when the growing time again comes round.

DENDROBIUM PHALÆNOPSIS, CHEW MANOR VARIETY.

AN inflorescence of a very pretty variety of *Dendrobium Phalænopsis* is sent by Mrs. Edward J. Thatcher, The Manor House, Chew Magna, Somerset. The flowers are white, with a slight tinge of rose colour on the margins of the outer halves of the petals, and a distinct veining of bright mauve on the front of the lip. There is a deep-purple spot at the base of the column, the foot of which is rose-purple. *Dendrobium Phalænopsis* varies in colour very considerably; but the white and nearly white forms are the more uncommon, the variety now sent being specially attractive. Comparatively small baskets and Orchid pans for suspending suit the plants best, and, given a warm, moist house to grow in, *D. Phalænopsis* is one of the most profuse-flowering species.



(Photograph by Jno. Gregory.)

FIG. 55.—ERLANGEA TOMENTOSA.

torium both in habit and in the cymes of flower-heads just overtopping the foliage. Propagation is readily effected by means of cuttings. The plant requires a similar treatment to the winter-flower-species of *Eupatorium*. When developing its growth, it does best in a plant stove, but during the flowering period it may be transferred to the conservatory or greenhouse, where a temperature of 50° to 52° is maintained. A note by Mr. Gumbleton, who flowered the plant last year, at Belgrove, was published in our issue for August 7, 1909.

pure white, the lower half and the petals being evenly spotted with dark chocolate colour. These and some of the intermediate class, showing purple spotting on the dorsal sepal, evidently lean towards *C. insigne* in the manner to be expected, seeing that *C. insigne* was twice used in their production. But in the variation in the poorer forms, which in a great degree resemble pale *C. Spicerianum*, and show no trace of the *C. insigne* which dominates in the better forms, the dissimilarity is surprising, although intermediate forms link the two extremes. Some

TREES AND SHRUBS OF NEW ZEALAND.

(Continued from page 98.)

THE SHRUBS OF NORTH ISLAND.

Of the native shrubs seen in flower in October and November about Auckland, one must write with some diffidence as to their possible hardiness in England even in the southern counties. *Tibouchna macrantha* from Brazil, *Leucodendron argenteum* from the Cape, *Strelitzia augusta* from Natal, and the handsome *Waratah*, amongst many others from New South Wales, luxuriate in Auckland gardens. And yet the winter climate is most inclement. Cold and terrific winds, cloudy skies, incessant rainfalls in gusty showers are the rule in July, August and September. In October, it clears up and hot weather sets in at once. With such winter conditions the tropical appearance of the gardens, which the very general planting of *Cordyline australis* and tree Ferns accentuates, contrasts strangely.

Meryta Sinclairi is a very handsome, araliaceous species, which has been largely introduced into Auckland gardens from the Three Kings and Taranga islands. It has simple, immense leaves and is dioecious in habit. The *Whau*, *Entelea arborescens*, is a lovely Tiliaceous shrub, which I saw smothered in its white flowers in a garden, and in fruit at the Waitakere Falls. It ranges down to Collingwood in the South Island.

The *Alseuosmias*, the only members of the Honey-suckle tribe, comprise an endemic genus of four species. *A. macrophylla*, flowering on the Nihotupu slopes in October, has exquisite, tubular, bright crimson, rather fleshy flowers, so sweet scented that it was locally called "Daphne." It runs up to 3,200 feet. *A. quercifolia*, with shining, sinuate-dentate leaves and smaller flowers, was out in November in the Waimarina "bush."

The Cornaceous *Corokia buddleioides*,* with silvery undersides to the leaves, and yellow flowers resembling *Ribes aureum*, was pleasing in the Waitakere Hills. *Pittosporum Kirkii*, seen in the Te Aroha Mixed Forest, is a very handsome and characteristic plant, forming an exception to the other New Zealand species, which are uninteresting. The Gesneraceous *Rhabdodhammus Solandri*, also seen at Te Aroha, is a small shrub which bears handsome, orange flowers over an inch long, and blossoms most of the year. *Senecio Kirkii*, flourishing on the arid, lava slopes of Rangitoto, in Auckland harbour, bears leaves of reddish tinge and is of striking habit. I only saw it in fruit, but Mr. Cheeseman, who kindly determined my specimen, told me it is beautiful in flower, the white blossoms, over an inch across, being most abundantly produced. It is often epiphytic. Of small shrubs of open situations, *Pomaderris phyllicifolia* (Rhamnaceæ), which replaces our *Ericas* and *Calluna* over large open areas, has a very heath-like habit and delicate, cream-coloured flowers, produced profusely in axillary racemes. *Pimelea longifolia*, growing about 3 feet high, with erect branches terminated by sessile heads of sweet-scented, rose-white flowers, was lovely and abundant on the coast near Auckland at Piha, and the Ericaceous *Gaultheria oppositifolia*, with white flowers, well seen about Rotorua in November, is also a handsome shrub about 3 feet in height.

Of undoubtedly hardy shrubs, widely distributed, *Carpodetus serratus*, common everywhere, is interesting, as it constitutes an endemic, monotypic genus in the Saxifragaceæ. It is of neat habit, showing lateral, rather dorsiventral branching, with white, axillary corymbs of small flowers, springing from the axils of the bright green leaves.

The Magnoliaceous *Drimys axillaris* (Horo-pito) should certainly prove as interesting to the horticulturist as it is to the botanist. It is a well-grown shrub or small tree, very character-

istic of the native forest undergrowth, occurring as generally in the *Nothofagus* as in the Mixed Forest. The leaves often show a reddish tinge, and, with the dark bark, contrast pleasingly with the small, creamy blossoms which run up the branches, two or three in the axils of each leaf. The so-called *D. colorata*, Raoul, I could not separate in any specific detail from *D. axillaris*. It seems merely a form showing an excess of red colouring matter in the leaves, and arrested branching.

Pennantia corymbosa, the only member of the Olacineæ in New Zealand, is a nice shrub with deliciously fragrant blossoms. The male plant shows large, fluffy panicles of white flowers.

Hedycarya arborea (Monimiaceæ), also dioecious, is particularly handsome, and would prove a most interesting introduction. Like so many of the Mixed Forest types, it belongs to a tropical genus, typically Polynesian, of which the New Zealand species would be the only representative capable of accommodating itself to northern latitudes. The glabrous, shining, dark green leaves contrast well with the creamy, saucer-shaped flowers, which hang in pendant corymbs below them. The male plant is the larger, but the female is very fine in fruit, when the bright red drupes are most conspicuous, two or three to one disc. This species is very like the Fijian *H. dorstenioides*, the flowers of which are a bright yellow. L. S. Gibbs.

(To be concluded.)

The Week's Work.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Rock-gardens.—The present is a suitable time to overhaul the rock-garden, with a view to restricting the more robust-growing species which, if left to themselves, will spread far beyond the positions originally allotted to them. Plants which have been wintered in cold frames, including novelties or freshly-propagated stock, may now be planted out. By this I mean the hardy Alpine plants, not those of a delicate constitution. After completing the work of planting, let the ground surface be given a top-dressing, first loosening any bare patches by means of a small handfork. The top-dressing may consist of loam and leaf-mould, with a good addition of lime rubble for such species as are "lime-loving." It should be spread evenly over the surface, and placed well around each plant. Every means should be taken to trap slugs, and, amongst the traps, perhaps there is none better than bran, it being possible to trace the slugs that have attacked the bran all the way to their hiding places. The slugs may be searched for at night by the aid of a good lamp.

Delphinium.—Few perennial plants are as stately as the Delphinium, especially the best of the named varieties, these latter being preferable to chance seedlings. They are particularly suitable for the shrubbery and the back of hardy flower borders, but they are also useful for furnishing trumpet vases of extra large sizes. Delphiniums may now be propagated by detaching the side-shoots and potting them up into 3-inch pots, placing these in a cold frame, which should be kept moderately close until the cuttings have formed roots.

Herbaceous Phlox.—Modern varieties of *Phlox decussata* are so excellent in quality that in gardens, where space will allow, a border should be devoted to them. The soil for *Phloxes* should be liberally dressed with decayed farmyard manure. If the gardener has a large stock of varieties, planting may now be proceeded with during fine weather, but if the stock is limited, and the varieties choice, the best plan would be to pot them up. Quite small pieces, if placed in 3-inch pots as advised for Delphiniums, will soon grow into good plants. The best plan in planting is to make clumps of each variety, arranging the clumps in an irregular fashion, employing, say, five or six plants in each clump. Plant them firmly at a distance of 2 feet 6 inches apart. Similar means must be devised to catch slugs as were recommended for the rock-garden.

Canna.—Cannas are suitable for warm soils and open situations, and in such places they may be expected to bloom well, and they certainly have a semi-tropical appearance. It is useless to expect success unless the plants are of large size and in good condition at the time they are planted out. Let the tubers which have been stored during winter be cleaned and separated, selecting the most promising branches, which are usually to be found on the outside of the clump. Place these in boxes containing leaf-mould, in a gentle heat, and, when growth has commenced, pot them up into 5-inch or 6-inch pots. Do not apply much water until growth is proceeding quickly. When the foliage has developed they should be gradually hardened off prior to removing them to the open garden.

Miscellaneous bedding plants.—Other bedding plants will require attention daily. *Pelargoniums* which were rooted from cuttings and are still contained in boxes, should be potted singly without delay, and placed in a warm house for a time. Prick off seedling plants of tuberous *Begonias* as soon as these can be handled, placing them in boxes or pans filled with fine sandy soil.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Globe Artichokes.—The present is a suitable time to make preparation for the planting of Globe Artichokes. These plants are frequently allowed to remain too long undisturbed in one position, with the result that they produce heads of inferior quality. Part of the bed should be transplanted each year, dividing the plants into pieces with four or five suckers, and planting them in rows 5 feet apart, allowing 4 feet from plant to plant. By this means the supply of heads will be prolonged throughout August and September. On the approach of hot, dry weather the young plants should be mulched with farmyard manure and receive liberal supplies of clear water. Seeds may be sown at this date. Sow in boxes and place them in a temperature of 55°. When the young plants are large enough, pot them singly in 4-inch pots and allow them to remain for a short time in the same house; afterwards gradually harden them, and finally plant them out-of-doors in May. These Artichokes are best propagated from suckers from selected plants.

Seed sowing.—As soon as the weather and condition of the soil permit, a sowing of some of the earliest subjects may be made. Peas of hardy sorts may be sown now, and the pods will be ready for gathering about the middle of June. Round-seeded varieties are best for early sowing, and by the end of the month such varieties as Early Giant and Gradus may be planted. Peas just showing above the ground should have the soil drawn closely about them and the sticks placed in position at the earliest opportunity. The main crop of Broad Beans should be sown as soon as possible. The Bean has a long, tapering root, which grows to a considerable depth. Beans should, therefore, be planted on deep, rich soil, and whatever manure is applied, it should be thoroughly decomposed. Plant in rows 3 feet apart, and cover the seeds with a 3-inch layer of fine soil. When the plants have set sufficient blooms for a crop, the tops of the main shoots should be pinched out, so that all the energies of the plant may be directed to perfecting the pods.

Turnips.—A sowing of Early Milan Turnip should be made without delay on a south border in rich, light soil. The seed should be sown in rows made 1 foot apart and $\frac{1}{2}$ inch deep. As soon as the young plants are large enough, thin them to 6 inches apart in the row. Small sowings should be made weekly for the next few weeks, as early Turnips frequently run to seed. If birds are troublesome, it is best to spread a garden net over the border for a few days, raising it a few inches from the ground.

Brussels Sprouts.—If this vegetable is required by the end of September, a small sowing should now be made in a pit where plenty of fresh air can be given without injury to other subjects. Lettuce and Cauliflower may occupy part of the same pit. All these plants should be grown as hardy and stocky as possible, so that when the time arrives for planting they may be able to withstand a few degrees of frost or cold winds.

* This was seen well established and fruiting profusely near Penzance in March last, also *Rhabdodhammus Solandri*. The *Corokia* was successfully raised from seed and flowered under glass by Mr. Bedford Bolitho's gardener at Trewidden, Penzance.

PLANTS UNDER GLASS.

By JOHN DONOHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Westwood, Yorkshire.

Caladium.—The tubers should now be started into growth. Place them about 2 inches apart in shallow boxes filled with a mixture of silver sand and leaf-mould—from Oak leaves—or Coconut fibre. After first placing a thin layer of sand over the surface, cover the tubers to about half their depth, taking care to leave the crowns quite clear of the rooting material. Stand the boxes where they may receive plenty of light, in the plant stove, taking care that no drip from the glass or rafters can reach them. No water will be required until the roots have commenced to grow, when moisture may be afforded as necessary. As soon as they are ready for potting, shift them into small pots, employing rough peat, fibrous loam, leaf-soil, and plenty of sand. Small pot plants of Caladium are useful for decorative purposes either in the dwelling-house or conservatory, and they are seen to the best advantage when grouped. If larger specimens are required they must be given increased root-room. Great care will be necessary when applying water, especially after repotting, as an excess of moisture at this stage will cause the soil to turn sour. During very bright sunshine a thin shading should be afforded, as the foliage is very tender. Caladiums love a moist atmosphere, therefore the paths and bare spaces in the house should be frequently damped, but do not wet the foliage, especially when the sun is shining brightly.

Achimene.—These tuberous-rooted plants are especially adapted for growing in hanging baskets. They are very free in flowering, and may be had in a great variety of colours. It is best to start a few in batches at intervals, as this practice will provide a succession of blooms lasting through several months. They should be planted in fibrous loam, peat, and leaf-soil in equal parts, with sufficient charcoal and sand to keep the whole porous. Employ the materials in a rough condition. The baskets should be lined with freshly-gathered moss, and be filled to within an inch of the top with the mixture recommended. Some of the tubers should be planted in the sides of the baskets and some underneath, employing a dibber for the purpose. Those in the top of the basket should be about an inch apart and will only need to be lightly covered with the soil. Besides a light watering at the start, and an occasional syringing to keep the moss damp, no further moisture will be necessary until the tubers are growing actively.

General work.—Many plants hitherto dormant, and now commencing to grow, such as Gloxinias and Begonias, should be transferred to more suitable positions. As the days lengthen and the sun's rays become more powerful, frequent dampings will be necessary in the warm plant houses. Guard against insect pests, and whenever any are detected fumigate the house with some nicotine compound.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence,
Bart., Burford, Surrey.

Masdevallia.—The pure white flowers of *Masdevallia tovarensis* will last a long time in perfection if no moisture is allowed to fall on them. The plants are blooming later this season than usual, but after the flowers are cut the plants will soon begin to grow, and when this occurs it is a good time to repot them. Any specimen which, through loss of leaves, has become bare in the centre should be broken up, and may either be made up afresh into a specimen, or the pieces may be potted separately into small receptacles. Pots or shallow pans may be used but the latter are preferable, as the plant requires no very great depth of compost. These should be filled to three parts of their depth with clean crocks, covering them lightly with a layer of Sphagnum-moss; the compost should consist of equal parts Osmunda fibre and Polypodium fibre. Do not pack the compost about the roots too closely, but compress it just sufficiently to make the plant firm. Place the plants in a shady part of the intermediate house, and afford water sparingly till the young leaves are well advanced. It is now well known that the old flower-spikes, if allowed to remain on the plants, will bloom again next season, but the retention of these is not advisable, as in time

they tend to weaken the energies of the plant. The present is an excellent time to break up old plants or to afford additional rooting space to *Masdevallias* of the *Chimæroid* section, which consists of the following varieties: *M. Chimæra*, *M. bella*, *M. Wallisii*, *M. Carderi*, *M. Backhouseiana*, *M. Roezlii*, *M. Chestertonii*, *M. Gongora*, *M. Lowii*, *M. Houtteana*, *M. stupenda*, *M. Winniana*, and *M. erythrochate*. These plants should be grown in shallow teak-wood baskets, and as their flowers are produced *Stanhopea*-like, from descending stems, no crocks must be used for drainage, a moderate quantity of Osmunda fibre and Sphagnum-moss, cut up and well mixed together, but not too compressed in potting, will suit them admirably. In potting, sprinkle plenty of very small crocks in the compost. Afford but little water until the roots are seen pushing through the compost. These *Masdevallias* are very liable to the attack of red spider, which must be kept under by frequently spraying and sponging the undersides of the leaves. For the next two months suspend the plants in a cool, damp position in the intermediate house, but afterwards move them to the *Odontoglossum* house. Shade the foliage from sunshine, and never allow the plants to get the least dry at the root when they are well established. February is a good month in which to overhaul the stronger-growing kinds, as *M. Veitchiana*, *M. coccinea* (*Harryana*), *M. ignea*, *M. Chelsonii*, *M. amabilis*, &c. Those plants that were not repotted in autumn may now be given attention, but such plants as will be needed for spring or early summer exhibition purposes should not now be disturbed. Those that absolutely need repotting or dividing should, after this has been done, be relieved of their flower-spikes immediately they appear, and not be allowed to bloom till next year. It is advisable to examine every plant, sponge the leaves with clean, tepid rain-water, and remove old flower-spikes, dead leaf-stems, and other rubbish. Such species as *M. Schröderiana*, *M. cucullata*, *M. polysticta*, with its "spider-like flowers," *M. ludibunda*, *M. striatella*, *M. Wageriana*, *M. Arminii*, *M. Estradæ*, *M. caudata* (*Shuttleworthii*), *M. melanopus*, also several hybrids as *M. Gairiana*, *M. Pourbaixii*, *M. Rustonii*, *M. stella*, &c., will form pretty objects in the cool house for several months to come.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of Northampton, Castle Ashby, Northamptonshire.

Apple trees affected with American blight.—The present season, whilst the trees are still dormant, affords an excellent opportunity for combating the American blight. One of the best remedies in my experience is made as follows:—A pint of gas tar should be thoroughly mixed with 1 lb. of dry, powdered loam, and $\frac{1}{4}$ pint of paraffin oil. This mixture is placed in sufficient warm, soapy water to make the whole of the consistency of rather thick paint. The specific is applied to the affected parts of the tree with a stiff brush, and thoroughly worked into every crevice. It is necessary to remove the earth from the base of the tree, as the surface soil frequently provides a hiding place for the pest: a top-dressing is afterwards applied in place of the old soil. If the operation I have described is repeated several times, the trees may easily be cleansed from this pest. Methylated spirits and other preparations in which paraffin is the principal specific are used by different growers with good results, their efficacy depending largely upon the way in which the cleansing operations are carried out rather than upon the choice of the preparation employed.

Pear-midge.—This is another serious enemy to the fruit-grower, and, unfortunately, it is becoming very prevalent in some localities. Its worst effects are seen in the case of early-flowering varieties, such as *Beurré de l'Assomption*, *Williams' Bon Chrétien*, and *Souvenir du Congrès*. Where trees have previously suffered from this pest the loose surface soil beneath the branches should be removed at the present time, and placed on the rubbish fire; afterwards apply a sprinkling of Vaporite, using a half pound to the square yard. As the powder is very fine, it needs to be applied carefully in order to distribute it evenly. After this, give a top-dressing of fresh loam in place of the soil taken away. The trees may be sprayed with a weak solution of quassia extract just previous to the flowers open-

ing, and an occasional spraying afterwards will be useful until the fruits are set: the effect of the spraying is to make the trees distasteful to the female insect. Later, when any of the fruits attacked with the midge fall to the ground, let them be removed without delay, and burnt, as most of them will contain the larvæ of the midge. In the case of large, grass-covered orchards, it is impossible to remove the surface soil, but the grass may at least be kept short, and all fallen fruit picked up and burnt. A dressing of Vaporite, applied at the present time and another in the autumn, will be useful in these orchards.

Spraying of orchard trees.—Where orchard trees are infested with lichen or any other vegetable parasites, the trees should be sprayed with the caustic soda solution. This must be done before the buds show any sign of bursting into growth. For a summer spray, the *NL All* insecticide or fruit-tree wash is quite safe and effective. The best method of spraying a large orchard is by means of a Hop-sprayer or line-washing machine—one that has a capacity of 30 gallons or more. There are two or three good machines on the market, and by the use of one of these the work can be done expeditiously and well. The Knapsack sprayer is equally useful for small gardens; it is needful to wear rubber gloves when using these sprays, owing to the caustic nature of the liquid. The operations will be better done if they are carried out on a calm day.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir Ernest Cassel,
G.C.B., Moulton Paddocks, Newmarket.

Fruit trees in pots.—Trees which were started into growth in November should now be in bloom. Maintain a minimum temperature of 50° in the house, and keep the atmosphere on the dry side until the fruits are set. Pollinate the flowers daily, about noon, or at some time when it is bright and dry, so that the pollen may be properly dispersed. Plum and Cherry trees are often attacked by aphids at this time, especially if the weather has necessitated the use of much fire-heat. The safest way to check the pest is to sponge the leaves with clean, soft water, but, after the fruits are set, vaporising with some nicotine preparation will be best. The trees are benefited if the flower-trusses are thinned before the blooms open. This will not only afford the individual flowers more room to expand, but save the energies of the plant, so that the fruits set properly.

Affording ventilation.—The admission of fresh air in fruit houses during the early part of the year requires to be done with great care. The foliage at this season is very tender, and is soon injured by carelessness in affording fresh air. A change of air is necessary at least once a day to ensure the proper development of fruit and foliage, but it must be admitted in such a manner that the temperature of the house will not be suddenly lowered or cold draughts created thereby. It should always be remembered that ventilators are not opened to lower the temperature, but to prevent it rising too high. Ventilation should be gradual, and it is advisable, on fine days, to ventilate early rather than wait until the atmosphere becomes excessively hot in the plant house. If fresh air is admitted early in the day, there is less danger of the leaves becoming scorched, as any moisture that has condensed on the foliage will have dried up before the sun gains power. The critical time is when the sun appears suddenly after a dull, cold morning that has necessitated the use of much fire-heat. On such occasions it is better to allow the temperature to rise a little above the normal than to open the ventilators too wide. Damping the paths and bare spaces will help to counteract the effects of excessive heat. In cloudy weather the gardener must be ever on the alert to open or close the ventilators at once on the appearance or disappearance of the sun until the house is finally closed for the night. During mild weather a little ventilation may be given all night through the top ventilators. Full advantage should be taken of the sun's heat by closing the house early in the afternoon; it will not matter if the thermometers run up 10° through this early closing. Mildew on vines and Peach trees under glass is caused, in the first instance, by faulty ventilation.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. It desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 21—Surveyors' Inst. meet.

TUESDAY, FEBRUARY 22—

Roy. Hort. Soc. Coms. meet. (Third Masters' Memorial Lecture at 8 p.m., by Mr. A. D. Hall, on "The Adaptation of the Plant to the Soil.")

WEDNESDAY, FEBRUARY 23—

Fruit Growers' Federation Ann. Meet. at Hort. Hall, Westminster.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—39.8°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 16 (6 p.m.): Max. 48°; Min. 39°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 17 (10 a.m.): Bar. 29.4; Temp. 54°; Weather—Rainy.

PROVINCES.—Wednesday, February 16: Max. 50° S. Ireland; Min. 38° N.E. Coast Scotland.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Herbaceous and Border Plants, Lilioms, and Hardy Bulbs, &c., at 12; Roses, Azaleas, &c., at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

Perennials, Hardy Plants and Shrubs, Lilioms and other Bulbs and Roots, at 12; Roses and Fruit Trees, at 1.30; Trade Sale of Miscellaneous Bulbs and Plants, at 12; Japanese Lilioms, &c., at 2; Palms and Plants, at 5, at Protheroe & Morris' Rooms.

Sale of Nursery Stock at Vine Street and St. John's Nurseries, Sevenoaks, by order of Mr. M. V. Seale, by Protheroe & Morris, at 12.

FRIDAY—

Orchids, at Protheroe & Morris' Rooms, at 12.45.

The Resistance of Plants to Frost.

A few weeks ago we discussed the ways in which frost exerts its injurious effects on plants. We will now consider what is known respecting the mode by which the more resistant species of plants protect themselves from injury by frost. The view current among practical horticulturists, for which, indeed, we think there is much to be said, is that the degree of sappiness of the plant determines its susceptibility to frost. But this view, as we shall show, does not account for all the facts. Recent investigations* have proved that species owe their power of resistance to the presence of definite substances in their tissues. As is well known, plant-tissues are built up of cells.

A vegetable cell, which is generally of microscopic size, consists of a layer of living substance, the protoplasm, surrounded by a cell wall and enclosing the cell sap. The sap consists of water, in which are dissolved sugars, mineral and organic salts, and nitrogen-containing proteins. Proteins, which are a class of substances of which the albumen of white of egg may be taken as an example, are contained not only in the cell sap, but also in the living protoplasm, which, indeed, is believed to owe its remarkable properties to the fact that proteins enter into its composition.

In frosty weather, as the temperature of the air falls, so, of course, does that of the

plant. But, owing to the presence of the salts and other substances dissolved in the cell sap, the latter does not freeze at 0° C. (32° F.), the freezing point of water.

The behaviour of the cell sap is, in this particular, like that of a solution of salt. Such a solution requires to be cooled below its freezing point, before ice separates out. Similarly, by experimenting with delicate cells of plants, the hairs on the stamens of *Tradescantia*, for example, it has been shown that ice does not form in the cells till the temperature has fallen to -6.5° C., that is to 20° F. Then suddenly the cells are filled with ice-crystals.

In leaves and similar tissues, the first effect of lowered temperature is the formation of films of ice on the outer surfaces of the cells abutting on the spaces between them. If the low temperature continues, water is withdrawn from the sap, and the film of ice increases till it forms a lump and bursts the tissues in its neighbourhood. In such cases it is easy to comprehend that damage and death may result.

But many plants show ill-effects, or even die, at temperatures not low enough to allow of this stage being reached. Hence the general opinion that the death of sappy plants by freezing is due to disorganisation of their tissues is manifestly erroneous.

It is mainly to the Swedish botanist Lidforss that we owe what knowledge we have of the means of protection against frost possessed by the hardier plants. His observations concern the winter-green flora of South Sweden, a flora characterised, as the name implies, by the possession of leaves which remain green throughout the winter. In this winter-green flora are included numerous, delicate, herbaceous annuals such as species of *Cerastium*, *Lamium*, *Veronica*, *Viola* and *Fumaria*.

At first sight, such plants appear to possess no means of protection against extreme cold, and yet they survive the severe winters of Sweden. On investigating these plants, Lidforss discovered that their leaves all contain, during the winter months, not starch, which is the form in which plants as a rule store their reserve food substance, but sugar. The leaves of these plants contain starch during the summer, but on the advent of winter, about November, the starch is replaced by sugar, which is contained in solution in the cell sap. On the approach of spring, the sugar gives place once again to starch. A similar phenomenon is exhibited by many trees, in the tissues of whose trunks starch occurs in summer and sugar (or oil) in winter. The well-known behaviour of the Potato supplies another illustration of a similar change. Stored at temperatures near freezing point, the tuber becomes sweet, owing to the change of some of its starch into sugar, but, when the Potato is brought into a warm place, the sugar disappears.

According to Lidforss, the presence of sugar in the leaves of the winter-green, hardy, Swedish plants is not a coincidence, but confers on these plants their frost-resistant powers. That this is not a mere theory, he has proved by a series of interesting experiments. Thus he cut off leaves of various plants—*Nerium* and *Viburnum Tinus*—placed them for several days with their leaf-stalks in a solution of sugar, and, when

they had taken up a certain amount of sugar, he exposed them to a frost of -7° C. The "sugared" leaves remained uninjured, though other leaves of these plants, which had been kept with their leaf-stalks in water only, were turned brown and killed. Similarly, seedlings of *Helianthus* and roots of the Bean, when caused beforehand to take up sugar, survived an exposure to -2° C., at which temperature plants not supplied with sugar succumbed.

The experiment is suggestive and possibly contains the explanation of the hardiness and non-hardiness of such plants as round and marrowfat Peas and the like. It throws light also on the well-known fact that plants which have survived a hard winter may fall victims in early spring—before they have begun to grow—to a sudden frost, especially if it follows after a spell of sunny weather. The disaster is attributed generally to the sudden change; but the evidence, on which such an explanation is based, is lacking. The explanation, which Lidforss proposes on the basis of the foregoing observations, is as follows: During the spell of sunshine, sugar disappears from the leaves, which, having lost their protective agent, are more susceptible to frost than they were during the winter. He points out that in the case of trees such as *Ilex* and *Yew* the damage is more marked on and, indeed, may be confined to, the south side; and he shows that, as a matter of fact in such cases, the sugar disappears from the leaves on the side exposed to the warming influence of the sun, and does not disappear from those not so exposed.

The explanation offered to account for the protective action of sugar in the sap is somewhat complicated but appears to be well founded. Briefly stated, it amounts to this: The peculiar substances, the proteins, to which we have already referred, are all important for the life of the cell, and hence of the plant. They occur in solution in the cell sap and also in the protoplasm. One property of proteins, such as those contained in white of egg, is their power of passing out of solution when neutral salts are added to them. After this process, which is called "salting out," the precipitated proteins are capable, if the neutral salt is removed at once, of redissolving, but, if they are left in contact with the salt for any length of time, they become "denatured," that is incapable of redissolving.

Applying this to the living cell which is being frozen: we know that it is losing water, and that, therefore, its sap, which contains both salts and proteins, is becoming concentrated. Hence we may conclude, and the experimental proof is forthcoming, that, if the frost continues, the proteins of the cell sap will be "salted out" and denatured; and if the proteins of the sap, then also those contained in the protoplasm bathed by the sap. Thus the bricks of which protoplasm is built are rendered worthless and the building of which they formed essential parts is ruined: the plant dies.

But if sugar is present in the cell, the salting-out process takes place at a much lower temperature than is the case if sugar is absent. This also is not a matter of conjecture, but has been demonstrated by experiment.

Hence the conclusions to be drawn from Dr. Blackman's admirable survey of the subject

* Dr. F. F. Blackman, *New Phytologist*, Nos. 8 and 9, vol. viii., 1909.

are that one of the chief causes of death of plants by freezing is the precipitation of the essential proteins of the cell, and that many plants prevent this process, and hence escape the rigour of winter, by storing large quantities of sugar in their tissues, which sugar prevents the precipitation of the proteins at all but excessively low temperatures.

It is by no means impossible that an occasional watering of the soil, in which green-leaved plants are wintering, with a solution of sugar might turn a doubtful scale in the favour of their survival. It is known that the roots of Beans can take up sugar when it is added to the soil, and, if Beans, why not marrowfat Peas? The experiment is worth trying.

OUR SUPPLEMENTARY ILLUSTRATION.

Rhododendron lucidum is a handsome, free-flowering Chinese species, growing from 5 to 12 feet in height. It is most abundant, according to Mr. GEORGE FORREST, in the Mekong Valley from 26° to 29° N., where, in company with a few specimens of *Rhododendron Delavayi*, it is the only species found lower than 9,000 feet. The plants seldom form masses, but are isolated in dry, open situations in Pine forests. Of the many *Rhododendrons* indigenous to that region it is by far the most symmetrical in form, most specimens resembling that shown in the Supplementary Illustration. The foliage is large, leathery, of a dark, glossy green on the upper surface, whitish and lighter beneath. The flowers are fragrant and large, widely campanulate, measuring 2 by 1½ inches, thick and fleshy, the interior of a pure waxy-white, most often without markings of any description. The exterior is shaded a very pale rose, deepening towards the central veining and base. The umbels are loosely rounded, bearing from 10 to 15 blooms. The species is closely allied to *Rhododendron Fortunei*, and, though coming from such a low altitude, has proved perfectly hardy; a number of plants have stood several seasons in the open at the Royal Botanic Garden, Edinburgh. Though they have not yet bloomed, they give promise of doing so before long.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees of this Society will take place on Tuesday, the 22nd inst., at 3 p.m. The third Masters Memorial lecture will be delivered by Mr. A. D. HALL, M.A., F.R.S., the subject being "The Adaptation of the Plant to the Soil."

VISITORS TO KEW DURING 1909.—According to the current issue of the *Kew Bulletin* there were 3,360,221 visitors to the Royal Botanic Gardens during the year 1909. These figures show an increase of 397,507 over those for the year 1907, which up to the present were the largest numbers on record. During the last ten years (1899-1908), 17,861,093 persons have visited the gardens, giving an average of 1,786,109. The total number of visitors on Sundays during 1909 was 1,384,369, and on week-days 1,975,852. Sunday visitors have increased by 62,985; in this connection it is of interest to notice that until the year 1907 visitors to the gardens on Sundays had only on three occasions exceeded 700,000. The number of visitors on week-days shows an increase of 281,639 over the previously recorded maximum in 1907. The greatest attendance on any one day was 103,895 on Whit Monday, May 31. The smallest number on any one day was 191, on November 29. The largest and smallest Sunday attendances were 71,584 and 492 respectively, and in the former figures a slight increase has occurred.

A SPRAYING DEMONSTRATION.—A practical demonstration in spraying fruit trees was given by the Four Oaks Syringe and Spraying Machine Co., Sutton Coldfield, Birmingham, on February 4, at Udimore, a village near Rye, in Sussex. The spraying took place in an orchard belonging to Mr. HOLMES, of The Parsonage. There was a company of about 50 or 60 to witness the demonstration, including members of the Rye and District Farmers' Club, and several local gardeners. A knapsack sprayer, weighing about 14 lbs., and having a capacity of 3¼ gallons, was first used. It is made entirely of copper, save the pump, which is of brass. All the working parts are on the outside, so that any adjusting or repairing of them may be done easily. This machine has, moreover, other advantages over those of an older type, for example an apparatus for agitating the fluid, so that the ingredients are kept well mixed during delivery. For ordinary purposes the machine is connected with a short length of hose and a brass tube, at the end of which is the nozzle; but for spraying

There were also spraying machines on wheels, with which also demonstrations were given. One was made specially narrow for passing along the rows of fruit plantations. These barrow sprayers have attached a powerful brass pump, and one, two, and even four sprays can be worked at the same time. It was interesting to observe that the machine worked easier when the four sprays were all going, although the pumping had necessarily to be faster. The number of sprays working at one time is regulated by means of a cock, turning it a little to one side or the other connecting either one, two, three, or all of the sprays. The demonstrator showed them working singly, in pairs, and all together. One of the large trees was covered with limewash by means of a machine. A special nozzle is employed for this work, as otherwise the machine would become clogged. The nozzle has a simple hole at the end, the fluid impinging on a fan-shaped plate of brass, from which it is dispersed in fine particles. The way in which every part of the tree, even to the finer branches, was whitened

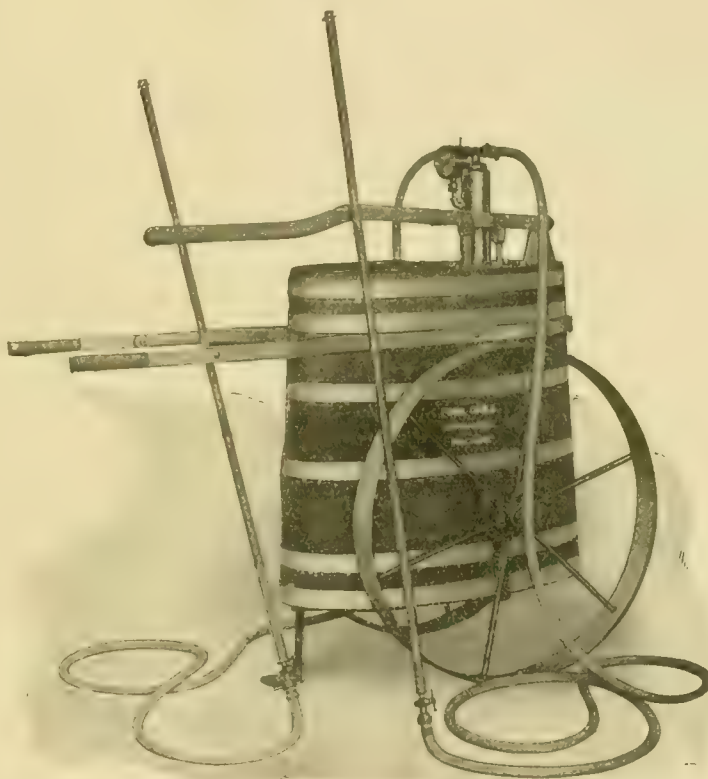


FIG. 56.—A SPRAYING MACHINE.

tall trees, a Bamboo rod, about 10 feet long, takes the place of the brass tube. When the longer rod is used, a belt is fastened around the body of the operator, with a socket for carrying the extra weight. The spray from both the short tube and Bamboo rod (see fig. 56) was considered by those present to be exceptionally satisfactory. It left the nozzle in the shape of an inverted cone, and wetted all the branches of the tree with very fine particles of moisture. The trees were standard Pears and Apples, growing in heavy soil, and formed an admirable object-lesson of the need for spraying, the branches being covered with grey lichen and algæ—harbouring-places of innumerable fungus and insect pests. A standard tree was first sprayed by the demonstrator, and another by one of the farm labourers, who was about 10 minutes in covering the tree with the spray. The demonstrator explained that a man used to spraying would do the work much more quickly, and with less than half the quantity of fluid taken on this occasion.

by this machine impressed us, although we thought the covering rather thin. But perhaps the dressing would appear thicker when thoroughly dry, as we were informed that the mixture was made according to Mr. THEOBALD'S formula—1½ cwt. of slaked lime to 100 gallons of water. Lime-washing was also performed by means of a small hand pump fixed to an ordinary pail. This is especially serviceable for lime-washing walls of farm buildings, greenhouses, poultry-houses, and similar places. The demonstrator exhibited many novelties in nozzles, including a double nozzle for spraying Potatoes.

THE SURVEYORS' INSTITUTION.—The next meeting, being the second of the two afternoon meetings arranged for the convenience of country members, will be held in the Lecture Hall of the Institution on Monday, February 21, 1910, when a paper will be read by Mr. ROBERT M. D. SANDERS, entitled "Land Banks and Small Holdings." The chair will be taken at 5 o'clock.

"THE BOTANICAL MAGAZINE."—The issue for February contains descriptions and illustrations of the following plants:—

CŒLOGYNE MOOREANA, tab. 8297.—This species was first mentioned in the *Gardeners' Chronicle* for December 15, 1906, p. 414, in a description of the plant which gained a First-class Certificate from the Orchid Committee of the Royal Horticultural Society on December 11, 1906. The species was introduced from Annam by Messrs. SANDER & SONS, through their collector, Mr. MICHOITZ, who found it growing at an elevation of 4,500 feet above sea level on the Laos aspect of the Lang Bian range. In habit *C. Mooreana* is much alike to the Malayan *C. Sanderiana*, but the flowers, which are pure white with yellow stamens, resemble the flowers of *C. cristata* in structure and in the appenditures of the lip.

POPULUS NIGRA VAR. **BETULIFOLIA**, tab. 8298.—This is a variety of the smooth-twigged, Black Poplar (*P. nigra*), but with downy twigs. Its habit is more elegant than the ordinary Black Poplar, and as a park tree it is more to be preferred for its shapely crown and its picturesque bole.

CAMPANULA BEAUVERDIANA, tab. 8300.—The Kew plant of this species, from which the illustration was prepared, was raised in 1908 from seed obtained from the Botanic Garden, Tiflis. It is very nearly alike to *C. Stevenii*, and has been regarded by Dr. BORN-MÜLLER as a variety of that species. In the living state, however, they are readily distinguished, for the calyx of *C. Stevenii* is without any indumentum, while the purple-violet corolla is lobed half-way down and the style-arms are longer than the undivided portion. *C. Beauverdiana* is a perennial, and thrives well and flowers freely under conditions suited to the native *C. rotundiflora*. The light purple flowers are produced in May and June.

RHODODENDRON KEISKEI, tab. 8300. This species is most nearly allied to *R. triflorum*. It is a Japanese species and is expected to prove hardy in this country, although, at present, it has not passed a winter in the open air. The flowers are yellow, and therefore it may be hoped that the hardiness will be proved, as the species would contribute a new evergreen, yellow-flowered *Rhododendron* to gardens.

AGONIS MARGINATA, tab. 8301.—This member of the natural order Myrtaceæ is figured from specimens obtained from Mr. P. A. DORRIEN SMITH, in whose gardens at Tresco Abbey, Isles of Scilly, it grows luxuriantly in the open, though in most gardens it is not hardy. *A. marginata* is one of 15 species peculiar to Western Australia. The plant has obovate, oblong leaves, narrowed at the base into a short petiole. The leaves are 1 inch to 1½ inch long and three to five lines wide. The flowers are sessile, produced in axillary clusters, 10 to 20 flowers in a cluster. The flowers are white, with reddish-purple interior.

A DISASTROUS FIRE.—In relation to the disastrous fire which occurred at the works of Messrs. BAYLISS, JONES & BAYLISS, LTD., Wolverhampton, on the 5th inst., we are informed that, arrangements having been made for obtaining an immediate supply of electric energy, it has been possible to resume work. The firm is known to our readers as manufacturers of iron fencing.

MR. FRIEDR. HENKEL.—We understand that Mr. HENKEL, nurseryman, of Darmstadt, Germany, left last week for the East, with the object of studying the Japanese art of gardening and general plant cultivation in Japan. Letters may be addressed to him at the Tokyo General Post Office.

THE SHREWSBURY SHOW.—We have received the schedule of prizes to be offered at the exhibition of the Shropshire Horticultural Society, to be held on August 17 and 18. It agrees with the notes which appeared in our issue for December 18, p. 419. As we said then, the principal change from last year is that Class No. 5, which was one for a group of foliage plants arranged for effect on a space of 250 square feet, is omitted, and, in its place, there is a new class for a display of indoor and hardy plants and flowers. The class is likely to cause great interest, and impart a freshness to the entire exhibition in the large marquee. The choice of material is as little limited as the methods that may be employed in displaying them. These new groups will also be arranged on spaces of 250 square feet. The judges will consider first the quality of the exhibits; second, general attractiveness to visitors; third, novelty and arrangement. The prizes in this class are as follow:—First prize, the Society's large Gold Medal and £20 in cash; second prize, small Gold Medal and £15; third, Silver-gilt Medal and £12 10s.; fourth, £10. There are a few alterations in the classes for vegetables, and one of the new regulations is that prizes are no longer accepted from trade firms for single dishes of vegetables.

WEST INDIA COMMITTEE.—At a meeting of the Executive held on the 10th inst., the following were elected members of the West India Committee: Mr. JOHN B. CARRUTHERS, F.R.S.E., F.L.S. (Trinidad), Mr. TOM ARCHER (Carriacou), Mr. W. F. McEWEN, Mr. JOSEPH E. PHILLIPPS (Jamaica), Mr. G. E. NICHOLSON (Trinidad), Mr. JOHN E. STURGE, Mr. H. UNDERDOWN, Mr. G. H. HILL (Trinidad), Mr. JAMES T. ALLEN (Montserrat), Mr. LANGFORD S. CRANSTON (Antigua), Mr. FRANC DE COMBRA (Antigua), and Mr. ARTHUR P. SKEAT (Dominica). Sir NEVILLE LUBBOCK was nominated to act on the reception committee of the Festival of Empire.

PATHOLOGY.—The number of reports issued during 1909 exceeded in number those issued during any previous year. Amongst diseases of Potatoes a noticeable feature was the great extension of "Corky Scab," caused by *Spongiospora solani*. On the other hand, "Dry Scab" due to *Spondyliocladium atrovirens*, which was recorded during 1908, was not received at Kew during the past season. A series of experiments on the "greening" of Potatoes was conducted, and the results published in the *Journal* of the Board of Agriculture, vol. xvi., p. 177, with plate (*Gardeners' Chronicle*, 1909, p. 152). A considerable amount of time has been devoted to investigating the algae and fungi occurring in sewage and contaminated river-water, on behalf of the Royal Commission on sewage disposal. An investigation of the fungi causing discoloured spots on chilled beef from Argentina, has also been in hand during the past year. A considerable amount of diseased material from the Colonies and outside sources has been submitted to Kew during the past year, including *Diplodia cacaoicola*, Henn., the cause of a disease which is a source of serious damage to Cacao in the West Indies. This disease is also prevalent in the Island of St. Thomé, whence material has been submitted to Kew for examination by the representative of the Portuguese Government. *G. M.*, in *Kew Bulletin*.

THE WILD COTTON TREE OF MOMBASA (ERIODENDRON ANFRACTUOSUM).—In the report of the proceedings of the Scientific Committee of the Royal Horticultural Society in the *Gardeners' Chronicle* of January 22, p. 62, writes Mr. J. R. JACKSON, there is a reference to the uses of the wild Cotton tree (*Eriodendron anfractuosum*). The tree is properly one of

those usually described as Silk Cotton trees, the fibre in which the seeds are buried being of a soft, silky nature, like that of *Bombax malabaricum* and other species of *Bombax*. Unlike true Cotton, the fibre has little length or strength, consequently for connection purposes it cannot be used as a textile, but under the name of Kabok, this silky floss has been for some time, and is still, exported from Java to this country, as well as to other parts of Europe, and to Australia for stuffing mattresses and cushions. I cannot lay my hands at this moment upon recent returns of the exports of this material from Java, but in the early stages of the trade, namely, in 1882, the quantity exported amounted to 302,201 kilos., and in 1885 they had risen to 600,269 kilos. So far as the wood is concerned it is light both in weight and colour, soft, and would be of very little use. In India it is sometimes used for making toys.

GARDENING IN THE UNITED STATES.—Spring appears to be the proper time for a redistribution of the staff of under gardeners in most places. Improvers, journeymen, and even foremen begin to look round with a view to obtaining fresh experience, and perhaps higher remuneration. Some of the more ambitious cast glances abroad, and each year we are asked our opinion on the opportunities for gardeners in this or that colony, and very frequently in the United States. The first letter for this season has arrived, and, our correspondent sends with his note, a cutting from a paper containing a glowing account of the chances for gardeners in America. This excerpt is headed "An Elysium for Gardeners. The author, who signs himself *Ponica*, from an address in Massachusetts, says:—

"I have been here some years as a gardener—which is one of the best professions in the States—and it is through the medium of your world-wide *Sunday Chronicle* that I send this message to my poor, down-trodden fellow-gardeners of dear old England. Even as a 'greenhorn' I never worked for less than £2 a week, with board and lodgings. Any journeyman, with only a limited knowledge of his work, can get from \$30 to \$35 a month, all found to start, and in the spring many vacancies are going begging at that figure. You will find more poverty in any one county in England among gardeners than will be found in the whole of the United States in the same line. Head gardeners get anything from \$60 a month, with free house, coals, light, milk, vegetables, and fruit. There are many hundreds of head men here getting from \$80 to \$140 a month, with the extras named. Even allowing for the difference in the cost of living, the margin is greatly in favour of America."

This certainly sounds promising, and rather better than the note we received from *T. E. R.*, another gardener on the spot, which was published in the issue for February 10, 1906. *T. E. R.*'s note was as follows:—

"There is no difficulty in young, well-trained gardeners getting good situations in this country. Head gardeners and superintendents experience some trouble in securing good men, and New York seedsmen are always glad to hear of men coming from England, and are ready to answer all inquiries, although they offer no temporary employment. March and April are the two best months to arrive. The general wages for journeymen (or assistants, as they are termed) is about \$50 to \$55 per month, without board, or \$30 to \$35 with board, board and lodging being worth about \$20 per month. It would be useless to attempt to advertise in the American papers because such advertisements are contrary to the law of the U.S.A. for anyone to become engaged before landing, and the parties who do so are subject to a very heavy fine, besides the probability of being deported."

"THE GARDEN LIFE YEAR BOOK AND WHO'S WHO IN HORTICULTURE."—The second edition of this annual has reached us. It contains a calendar of garden operations for the year, several useful articles, such as those upon Sweet Peas of 1909, The Rose Season, The Florist's Tulip, Some Rare Orchids, Ferns, Newer Varieties of Fruit, Vegetables, Spraying, &c. A portion of the book is devoted to short biographical notes of people connected with horticulture. This is useful, as far as it goes, but is scarcely so representative as future editions may be expected to become.

A TWICKENHAM MARKET GARDEN.—Mr. ALFRED SAVILL, of Messrs. ALFRED SAVILL & SONS, sat as single arbitrator at the Surveyors' Institution recently in a case brought under the Agricultural Holdings Act. The claimant was Mr. POUPART, late of Whitehouse Farm, Twickenham, a market-gardener, his tenancy of which expired at Michaelmas last. He claimed £722 6s. 2d for Rhubarb, fruit trees, greenhouses, half dressings of manure, and general improvements. The landlord of the farm, Mr. COLE, denied liability, and counterclaimed for £799 for delapidations and breaches of covenant, plus £83 rent due, making a total counterclaim of £882. Mr. R. J. STEELE, market-garden valuer, appeared for the tenant, Mr. POUPART, and Mr. COLE was represented by Mr. OWEN THOMPSON, barrister, instructed by Messrs. CROWLEY, ARNOLD & Co. After hearing evidence on both sides, Mr. SAVILL decided to view the garden before giving a decision.

MR. GEORGE J. INGRAM.—Many of our readers are probably aware that the well-known secretary of the Gardeners' Royal Benevolent Institution was the victim of a sudden attack of illness on the 7th inst. His condition remained extremely critical until the 14th inst., when the doctor was able to declare that the immediate danger was past. Our readers will join in the hope that Mr. INGRAM may be speedily restored to his usual health.

PUBLICATIONS RECEIVED.—*Common Weeds of the Farm and Garden*, by Harold C. Long, in collaboration with John Percival, M.A. (London: Smith, Elder & Co.) Price 6s.—*University of Illinois Agricultural Experiment Station. Bulletins: Relative Efficiency of Different Rations for Fleshing Horses for Market*, by Rufus C. Obrecht; *Composition of Market Butter*, by Carl Lee and Jesse M. Barnhart; *Short Fed Steers, a Comparison of Methods of Feeding*, by Herbert W. Mumford and H. O. Allison; *Pasteurization as a Factor in Making Butter from Cream Skimmed on the Farm*, by Carl Lee. (Illinois: Urbana.)—*Fungous Diseases of Plants*, by B. M. Duggar. (London: Ginn & Co.)—*Fruit Culture*, by S. T. Wright. (London: L. Upcott Gill.) Price 1s.—*Messrs. Sutton & Sons, Reading.* An "occasional magazine," entitled "The Garden Fayre," containing useful articles on the cultivation of annuals and biennials, together with excellent illustrations. Price 6d.—*Pansies*, by James B. Riding. (London: London Agricultural and Horticultural Association, Ltd., 92, Long Acre.) Price 1d.

POLYGONUM.

THE "Knot Grass" family is a large one, comprising about 150 species. Of these, however, only about a dozen are worth a place in the garden. Some of the stronger-growing species, like *P. cuspidatum* and *P. sachalinense*, are handsome foliage plants, suitable for the wild garden, where they can have full scope for their rambling habits. Others like *P. affine* and *P. vacciniifolium* are valuable plants for the rock-garden where there are large spaces to cover. Quite opposite in character to the foregoing kinds, which are all of rambling growth, is the choice Himalayan species, *P. sphærostachyum*. This is of tufted habit, with small leaves and spikes of deep red flowers. Of the annual species the best is *P. orientale*, a handsome plant with drooping racemes of rosy-red or white flowers. It is well worth a prominent place in the herbaceous border. One of the most valuable hardy woody climbers in cultivation is the handsome *P. baldschuanicum*, from Bokhara, with its trusses of white flowers. When established it soon takes possession of good-sized trees. The best herbaceous species are:—

P. AFFINE (*P. BRUNONIS*), [*Bot. Mag.*, t. 6472].—This handsome, creeping plant comes from the Himalayas. It is a rapid grower, and soon forms a wide carpet, studded with dense spikes of rosy-red flowers during the summer and autumn.

It is especially valuable for covering old tree roots with its almost evergreen foliage, which assume a rich colouring in the autumn.

P. ALPINUM is a native of the Alps of Europe, and forms a spreading bush 3 feet to 4 feet high. During the summer its pure white flowers are borne in great profusion in large panicles, which makes it a most effective plant for the border.

P. AMPLEXICAULE [*Bot. Mag.*, t. 6500].—Though attractive on account of its spikes of rose-red flowers, this Himalayan species can hardly be included amongst the most useful border plants. It has a strong, woody root-stock, and produces stems 2 feet to 3 feet high with clasping leaves.

P. COMPACTUM (see fig. 57).—The subject of the accompanying illustration is considered by some to be only a form of *P. cuspidatum*. It is, however, of very compact habit, growing only 2 feet high in poor soil. The plant bears erect panicles of white flowers, instead of drooping as in *P. cuspidatum*. It is an effective subject for an isolated bed, but in the border is liable to be troublesome on account of its rambling habit. It was introduced from Japan.

species is a native of tropical portions of the Old World.

P. POLYSTACHYUM.—This Himalayan plant is one of the most effective and useful members of the genus on account of its late flowering habit. It is often in full flower till cut down by frosts. The pure white flowers are produced in large panicles on stems about 5 feet high; these are useful for cutting for indoor decoration.

P. SACHALINENSE [*Gardeners' Chronicle*, August 5, 1893, p. 159, fig. 32].—From the Island of Sachalin, this may be described as a larger-leaved *P. cuspidatum*, with axillary racemes of greenish-white flowers. It is a very strong grower, and is often used as a fodder plant. It attains to a height of from 10 feet to 12 feet in moist, rich soil.

P. SPHEROSTACHYUM [*Bot. Mag.*, t. 6847].—A dwarf, tufted perennial from the Himalaya, with narrow leaves and spikes of deep red flowers. It is a choice Alpine plant and is worth a place in the smallest rock-garden.

P. VACCINIFOLIUM [*Bot. Mag.*, t. 4622].—This Himalayan plant is a creeper, with branching, prostrate, woody stems, small leaves, and spikes



[Photograph by W. Irving.]

FIG. 57.—POLYGONUM COMPACTUM AT KEW: FLOWERS WHITE.

P. CUSPIDATUM (*P. SIEBOLDII*), [*Bot. Mag.*, t. 6503].—This is a tall-growing Japanese species, with leafy stems 6 feet to 8 feet high. Grown as an isolated specimen it has a handsome appearance, with its arching stems and drooping panicles of creamy-white flowers. It is a rapid grower, and should be kept out of the border, as once established it is difficult to eradicate.

P. LANIGERUM is a tropical species, growing 3 feet to 4 feet high, with silvery-grey foliage. It is very effective as a foliage plant, but should be treated as a tender annual, as it is not hardy in this country, although a perennial in its native habitat.

P. ORIENTALE [*Bot. Mag.*, t. 213] is a very old garden plant, having been in cultivation since the year 1707. Like *P. lanigerum*, it is best treated as a tender annual. If seedlings are raised indoors they will come into flower earlier in the season than those raised outside. It is a rapid grower, forming large, bushy plants 3 feet to 6 feet, and sometimes in rich soil 10 feet high. The deep rosy-purple flowers are borne in pendulous racemes on the tips of the branches. There is a variety with white flowers. The

of bright rose-coloured flowers. It is a valuable rock-garden plant, and loves to ramble amongst stones in fairly moist places.

All the Polygonums will grow in almost any soil. W. I.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

COTONEASTER SIMONSII.—We have in the gardens here a specimen of *Cotoneaster Simonsii*, which is the largest plant of the kind I have ever seen. It was planted in its present situation 18 years ago when quite small, and may, therefore, be supposed to have just come of age. It is a shapely bush, growing equally strongly in all parts, and as the straggling shoots have been annually pruned back, it now presents a perfectly solid mass. Its height is 10 feet, and the circumference 70 feet. It has never suffered in the least, even in the hardest winters. Vicary Gibbs, Aldenham House, Elstree.

GALANTHUS ELWESII.—In reply to Mr. Basil Levett, p. 106. I cannot report favourably of this Snowdrop. I have had it for 20 years or more, but it has not increased much, nor does it flower with me any earlier than *G. nivalis*. Perhaps our humid western seaboard does not suit it, a climate in which the common Snowdrop revels, spreading by the acre through woodland. The most profuse display of Snowdrops known to me is at Ardgowan, on the Clyde, the residence of Sir Hugh Shaw-Stewart, where they extend in a continuous sheet for about half a mile through a wooded promontory surrounded by the waters of the firth. The earliest date I have noted for the flowering of the naturalised *G. nivalis* is December 19, I think in 1894, but that was exceptional. The usual date is about the New Year if the ground is not frost-bound. I agree that *Muscari azureus* is a treasure, but it does not behave well with me as a winter flower. It pushes up a few spikes in January, which generally get frost-bitten, reserving its full display till March. *Herbert Maxwell.*

I have read Mr. Basil Levett's communication on p. 106 with much interest. My experience of this large and early variety corresponds entirely with his. In other words, I have found this special Snowdrop extremely capricious, and by no means enduring. Here it succeeds best at the head of my garden, where the soil, beneath over-arching trees, has a considerable admixture of leaf-mould. *Galanthus Melvillei*, sent to me by the raiser, from Dunrobin Castle, is much more reliable. It is almost contemporaneous with *G. Elwesii*. *David R. Williamson.*

WINTER NOTES FROM A YORKSHIRE GARDEN.

Far be it from me to whistle until we are well out of the wood of March into the comparatively open ground of April; but, anyhow, we have just emerged from a terrible visitation of winter, and, therefore, it may be interesting to note how a few rather special plants have come through what, after all, ought to be our worst spell, for, during a period of about ten days, the night temperature hovered round 29° of frost, and a deadly ferocity of cold held the garden locked in its grip. Embodiment, in the first place, appears to be perfectly satisfied with life. It occupies a very exposed position, and has merely had a few pieces of coke laid about its roots. It has had no other shelter of any sort; therefore, I note with pleasure that its buds are pink and prosperous, though many of the mature leaves have suffered and fallen. Close by, of two *Camellias*, *japonica grandiflora* is quite well, but *Sasankwa* has lost all its foliage, and looks pretty sickly. The best of them is *Yukimiguruma*, brilliant green and summer-like, in the Lily bed; while on the terrace wall, *Arejishi* is thriving steadily, but has dropped all its flower-buds. On the terrace wall nothing has had any protection this winter, which makes me the more rejoice over the unperturbed health of *Fabiana imbricata* and *Buddleia Colvillei*, both of which appear quite secure. *Carpentaria californica* droops its wilted leaves and looks dismal; so does *Olearia stellulata*. Both of these, though, will obviously unfold again happily in spring. *Olearia nitida*, on the other hand, is as immune as *Haastii*; while *Nandina* has not even cast its leaves; and *Rosemary* (which often, ridiculous to say, has died here) is still vigorous and green, by the side of *Cotoneaster angustifolia*—a good deal browned and saddened by the cold. *Berberis Knightii* robustly gives the lie to all accusations of half-hardiness; and *Illicium anisatum* continues in verdant prosperity. In the rock-garden, again, I have to note the behaviour of *Rhododendron Griffithii*: and on this plant I want more information. As everyone knows, *R. Griffithii* = *R. Aucklandii*, most glorious of half-hardy *Rhododendrons*; but this *Griffithii* was sent to me as being pure *Aucklandii* in everything but constitution. True enough, it has all the look of *Aucklandii*, and, I hope, will ultimately have *Aucklandii*'s wonderful flowers. Yet where will you find *Aucklandii* in an open position putting up with 29° of frost? But this *Griffithii*-*Aucklandii* of Mr. Reuthe's has not turned a hair. In the worst weather its leaves grew dark and curled up, and looked resentful; but now they are expanded again, and as bright as ever. Despite the reputation of hardiness with which the plant was sent me, I was much alarmed when such

a frost descended; but it now really seems as if this plant would, indeed, stand almost anything. None of the other *Rhododendrons* have suffered, not even *lanatum* and *campylocarpum*. Veitch's new hybrid, Dr. Stocker, has proved as superior to cold as even that other reputed child of *Aucklandii*, *Pink Pearl* itself; and *Anthopogon*, livid grey in its winter foliage (like *imbricatum*), fills the air with its curious fragrance so intensely pungent and aromatic as to hover on the boundary line of the delicious and the distasteful. I dare not prophesy a resurrection for *Cortaderia Quila*; it is almost too much to hope. And delusive *Prunus serrulata Ungerii* looks as dead as *Queen Anne*. On the other hand, *Chamaerops affinis* stands serene, though *Phoenix farinifera* has gone to its long home, I fear, where probably it has by now been joined by *Sollya heterophylla* and *Hedychium Gardnerianum* (two wild vagaries of mine). *Notospartium*, however, seems intact: time alone will show if *Calceolaria violacea*, rather elaborately protected, will reappear; and *Tricuspidaria Hookeri*, though looking much the worse for wear, is obviously, at present, filled with the possibility of new health and life. The death that most surprises me is that of *Senecio Grayi*; fortunately, however, my surprise does not trench on grief, and I bear the loss with something warmer than resignation. Even at its best, I do not like *Senecio Grayi*. One cannot tell yet, of course, what mortality has raged among the rock-plants; but I can already see that I must mourn—and bitterly indeed—for glorious *Primula Forrestii*. However, Veitch's *Cockburniana* hybrids are preparing for a prodigious return to active life, and, on the cliff, the impossible *Androsaces Haussmannii*, pubescens, cylindrica, and pyrenaica have already the air of having been born and bred in their crevices. *Iris melanosticta*, too, is springing vigorously, if only the mice will abstain from eating it; *Antirrhinum sempervirens*, though now a poor, leafless bush, is promising to break afresh into verdure when the spring arrives. Finally, I am delighted to see that *Onosoma Thompsonii* looks after itself perennially, and that *Ourisia macrophylla*, despite my gloomy forebodings, is proving itself as robustly hardy as *coccinea*. Even *Helixne Soleirolii* has survived in corners, and *Olea fragrans*, though its leaves are dropped, is covered with the promise of fresh buds. So much, then, for the present. I hope no Nemesis of killing cold may descend on these survivors; but goodness knows what tragic vacancies I may not discover as the year advances! *Reginald Farrer.*

PLATYCERIUM ALCICORNE.—There is to be seen in the gardens of Mrs. Behmans, of Broome Hill Bank, a much finer specimen of this Fern than the one which formed the subject of the Supplementary Illustration in the issue for February 5. It was placed in a small pot 40 years ago, and has been repotted frequently since, until it now occupies, I believe, an 18-inch pot. The receptacle has for a long time been covered by the broad fronds. The plant measures about 8 feet by 6 feet. By the kindness of the gardener, Mr. Bridger, I was able to photograph it, and I send a rather poor photograph. *A Lampard, Kingswood, Tunbridge Wells.*

A FLOWER SHOW'S JUBILEE.—The Lutterworth and District Horticultural and Cottage Gardeners' Society, established in the year 1860, will this year celebrate its jubilee. Multitudes of these local societies have been formed, and it would be interesting to know of similar instances of flower shows that have survived for 50 years, or possibly longer. I fancy ours is one of the oldest societies in the kingdom. *A. H. Dyson, Assistant Hon. Secretary.*

FREESIAS FROM SEED.—I have read the interesting account of Mr. F. H. Chapman's seedling *Freesias* shown at the last fortnightly meeting of the Royal Horticultural Society (see p. 76). That they flowered in two years from the sowing of seed was very satisfactory. The enclosed spikes of *Freesias* are from seed sown on July 13, 1908. The seed was saved from a stock we have grown for over six years. The weather in the past three summers has been detrimental to the thorough ripening of the corms, which is so essential to good flowering. *H. Juniper, Dyrham Park Gardens, Barnet.* [The flowers are very good.—Eds.]

THE L.C.C. APPOINTMENT.—The recent appointment of a soldier to one of the best positions open to gardeners plainly shows that professional gardeners ought to combine in one large association, and thus help each other. The voices of one or two individuals pass unheeded in such cases, but if a powerful association of 10,000 members speaks, the public takes notice of what is said. So long as anyone who has done a few days' digging or planting can call himself a gardener, those who know their business properly can never be sure of receiving proper treatment. The remedy is certain to come eventually, and it can only be in the form of weeding out the unqualified men and combining the others for mutual assistance and protection. A soldier who has served his country honourably is worthy of all respect and admiration, but cannot reasonably be considered the most fit candidate for a post where the best gardeners would find scope for the whole of their experience. A post of that kind requires a man with a wide knowledge of the trees, shrubs, and plants that may be expected to succeed on various soils and under various climatic conditions, and the effect they will have—when grouped together—after they get established. The best ideas in landscape gardening are also required, and numerous other questions which a good gardener has to consider daily. I quite admit that a military training assists a man to control others with tact and judgment, but it is not strictly necessary to that end. Many gardeners have to control a staff of 30 to 60 men, and have to bring administrative powers into use of which a soldier knows nothing. A gardener who can wisely and economically arrange for such a staff, could also be entrusted with a staff of 900. There remains only the question of surveying and planning new grounds. Some gardeners obtain good experience in these subjects, and could easily and quickly add to their knowledge; but surveying should not be considered the chief qualification necessary for these appointments. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

—The recent appointment of a soldier as chief of the London County Council parks, &c., encourages me to make an early application to them for appointment as superintendent of one of their first-class parks. I possess the highest qualifications. At school the drill instructor (an ex-sergeant of the immortal Light Brigade) brought me to the head-master's notice as being the best boy at drill he had ever had. I hold prizes and certificates which substantiate this. Two years later, when a mere youth, I joined the premier Volunteer corps, and further distinguished myself by attending every drill and becoming champion shot amongst the recruits of my year. After three years a lamentable, but unavoidable, gap of 10 years occurs in my experience in this important branch of horticulture, but at the earliest opportunity I joined the 2nd Volunteer battalion of the county regiment, and was so efficient and zealous that in a few months I was promoted to sergeant, which rank I now hold in the Territorial Force. I am a first-class shot, and have for many years been a member of the County XX. If required, I am sure my colonel would highly recommend me as an eminently suitable candidate for the post of parks superintendent, for he recently complimented me on my smartness in turning out my guard. I think I have written sufficient to show that I have splendid qualifications, and must be a strong candidate for the first vacancy. On further consideration, however, I do not feel so sanguine, for, on leaving school, I attended science and art classes for some years, studying such apparently unnecessary subjects as botany, horticultural drawing, &c. I have also allowed a misguided interest in the principles and practice of horticulture to absorb the greater portion of my thoughts and energies since that time, and, as it is possible that some enemy may acquaint the L.C.C. of these lapses, I fear they may pass me by in favour of some candidate who is totally ignorant of these frivolities. *A. C. B.*

—Everyone who has made a life study of horticulture will be amazed at this appointment. It is not the appointment, however, I wish to call special attention to in your leading article of last week; it is the suggestion of a National Diploma in Horticulture. I am sure such a thing would be welcome to everyone who has the welfare of horticulture and gardeners

at heart. Over a year ago I made the suggestion to the secretary of the Royal Horticultural Society, who kindly informed me that such a step might be taken in the near future, but I have heard nothing further about it. If such a powerful society as the R.H.S. were to take up the matter, it would confer on horticulture a great benefit. There would then be less difficulty in finding the right man for the right place. It would also be a great advantage to gardeners; that is, men who wish not only to know the way to do a certain thing, but why they should do it. Such a suggestion may not find favour with some gardeners, because of the extra exertion in study, but such gardeners would have to spur up or be left behind. The R.H.S. examination, although it has been a beginning for the systematic study of horticulture, yet it is not a complete test, as the examiners well know; whereas such a National Diploma in Horticulture would be a complete test for the gardener. It should only be granted to those who have gone through a thorough course of practical training as apprentice, journeyman, and foreman, and who also have a high standard of scientific training, all of which should be tested by examinations. We must have the barrier broken down between science and practice. It is then, and then only, that our profession will be raised to the position it ought to occupy amongst the professions of the world. Gardeners have such matters in their own hands; let them rise to the occasion and improve themselves, and their conditions will correspondingly improve; the greater knowledge one has, the higher does it lift him in the estimation of those with whom he comes into contact. I might say, however, it is not by combining and trying to force matters that success will be gained; for I consider this will hinder rather than help gardeners. Improvement lies with the individual himself; let him apply himself to the task of knowing his soils, his plants, the conditions of the former, and the life of the latter, the diseases which attack them, and how to prevent or cure them, the insects which attack them and how to prevent or get rid of them. Now that horticulture is a subject of instruction in most elementary schools, the National Diploma in Horticulture would be a guide to education committees in the selection of men suitable to direct the young minds in the paths they ought to follow to become successful in the cultivation of the more common garden crops, and to awaken in them a real interest in the observation of the laws of Nature. *William Good, Instructor in Horticulture, Hertfordshire County Council.*

LATE CHRYSANTHEMUMS.—I am sending you blooms of what I consider the best late white Chrysanthemum, Mme. R. Oberthur. Some of the plants are grown in 6-inch pots, and these have three good blooms; others, having from 12 to 24 blooms, are in 9½-inch pots. As you will notice, some of the blooms are not yet fully developed. *G. F. Hyland, Ashby St. Ledgers Gardens, Rugby.* [Remarkably good blooms were sent by Mr. Hyland, and the foliage was exceptionally fresh.—Eds.]

PRUNING OF YOUNG VINES.—Mr. Molyneux says (p. 106) that "Mr. Ward would not treat one-year-old vines in the same manner as those he raised and planted three months after striking the eyes." In reply, I may say that I should certainly treat the young growths of the cut-back one-year-old vines in exactly the manner indicated in my note at p. 89. Mr. Molyneux also states that "Mr. Ward's method of treating newly-planted vines is much too intricate for the amateur to follow." The method of procedure is simplicity itself, and the details such as anyone having the most elementary knowledge of vines can easily understand. The latter simply consists in the stopping of the leading and lateral growths of the vines the right way instead of the wrong way, with a view to securing good results in as short a time as possible, without in any way injuring the permanent fruit-bearing capacity of the vines. Mr. Molyneux says: "The method of establishing vines in the elaborate (I would say simple) manner Mr. Ward describes is entirely different from that generally practised by amateurs," and concludes with the words: "For the beginner, I think my plan is desirable." Mr. Molyneux will readily admit that because things

are "generally" done a certain way is no proof that they are being treated the right way; the reverse is the case more often than not. Mr. Molyneux says: "The experience of Mr. Ward supplies the exception to the rule." Quite so; but I hope it will soon become the rule as regards the treatment of young vines. I know that Mr. Molyneux is an excellent grower of Grapes himself, as in years gone by our produce has been staged together in competition at the Southampton shows. *H. W. Ward.*

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

FEBRUARY 8.—*Present:* Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the Chair); Messrs. A. W. Hill, A. D. Michael, L. Crawshaw, J. Douglas, G. Massee, W. Cuthbertson, W. Hales, G. Gordon, A. Worsley, J. W. Odell, R. Hooper Pearson, C. T. Drury, J. Fraser, and F. J. Chittenden (hon. secretary).

Seedling Cyclamen.—Mr. HERBERT CHAPMAN, Rye, showed a large number of seedlings raised from seed of *Cyclamen ibericum* roseum, which had been pollinated (without previous castration) with pollen of *C. latifolium*. The seedlings flowered earlier than seedlings raised from *C. ibericum* roseum pollinated with its own pollen, and the flowers were larger than those of the seed parent, but otherwise they showed no sign of hybrid origin. Mr. CHAPMAN is carrying on further work with these plants.

Cyclamen latifolium (persicum).—Several plants of the greenhouse *Cyclamen* were exhibited by Mr. A. W. SUTTON, to illustrate new strains of this very variable plant. A plant of the common type was shown to compare with them. The flowers included a large-flowered, almost magenta one, with broad-fringed petals; a white flower with fringed petals, red at the throat and tipped with pink; a pink flower with very slightly frilled petals, undulate at the edges, red at the throat, and tipped with deep pink; and others varying from white to deep rose, and fringed to a greater or less extent.

Variation in Crocus chrysanthus.—Mr. BOWLES showed a series of flowers of seedlings raised from *Crocus chrysanthus*, illustrating the enormous range of colours in the flowers of this species. He said the range was so great as to render it practically impossible to separate *C. chrysanthus* from *C. biflorus*.

Malformation in Primula sinensis.—From Mr. ETHERINGTON, of West Bank Gardens, Lewisham came some specimens of *Primula sinensis* (stellata) with numerous dwarf flowers at the base of the umbel. Mr. CRAWSHAW took the plants for further investigation.

Fasciation in Russelia juncea.—Mr. W. H. PATTERSON, of St. Vincent, W. Indies, sent an interesting case of fasciation in *Russelia juncea*. As Mr. PATTERSON remarked, fasciation, though a very common phenomenon, is rare in xerophytic plants. In the present case, the plant had, however, not been growing under normal xerophytic conditions, but had been in garden soil, and received more water and earth salts than usual.

Bulbs failing.—A number of Hyacinths were sent, in which the roots were either entirely wanting or were much decayed. Although both eelworms and bulb mites were present, their numbers were so small, and the appearance of the bulbs so much unlike the damage done by these pests, that the Committee thought the failure of the roots must have been due to some such cause as too great a supply of moisture in the soil when the roots were first formed, which led to their suffocation and decay.

SOUTHAMPTON ROYAL HORTICULTURAL.

JANUARY 28.—The annual general meeting of this society was held at the Municipal Buildings on this date. The Mayor presided over a larger attendance than usual.

The annual report showed that the society had, considering all circumstances, a satisfactory year. The very unseasonable weather on the occasions of the Rose and Carnation shows considerably reduced the society's receipts. The

garden fête, however, held in the president's grounds at South Stoneham, proved a great success, and enabled the council to issue a statement of accounts with an improved credit balance. The total receipts for 1909 have amounted to £756 15s. 1d., including the following sums received from shows:—Garden fête, £75 16s. 8d.; Rose show, £279 6s. 3d.; Carnation show, £115 5s. 3d.; and autumn show, £167 2s. 6d. The sum of £740 14s. has been expended, leaving a credit balance of £16 1s. 1d.

The president, Lord Swaythling, and the vice-presidents were re-elected. There were two nominations for the chairmanship of the council—the retiring chairman, Mr. Blakeway, and Mr. E. Kemp Toogood, the latter being elected by a large majority. The other officers were re-elected, including the secretary, Mr. C. S. Fudge, who has held office for a period of 37 years.

SCOTTISH HORTICULTURAL.

FEBRUARY 1.—The monthly meeting of this association was held at 5, St. Andrew Square, Edinburgh, on this date. Mr. Whytock, the president, presided over an attendance of 90. In his address, he dealt with the working of garden soils, more especially with reference to the benefits of deep digging and the beneficial influence of frost. Digging two spits deep and roughly ridging up in autumn and early winter, so as to get the maximum surface exposed to the influence of frost, had been his practice, and by this means he had got rid of slugs and other ground pests. In the case of land dug only one spit deep, he did not think it advisable to dig heavy clay soil until the time when the crop was to be put in. Gardeners had long practised deep working of the soil, and had given a lead to agriculturists in this direction, but in some instances they had carried it to excess. He once saw men trenching ground shoulder deep. In soils that were 2 to 3 feet deep the best results were obtained from working them frequently to their full depth. A discussion followed on the action of frost on soils and other matters connected with their cultivation.

An exhibit of forced Rhubarb was shown by the City of Edinburgh Distress Committee from their farm at Muniston.

Twelve new members were admitted.

The paper for the meeting on March 1 will be on "Weather Forecasts," by Mr. James Moncur, Colinton.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 3.—There was a good display of Orchids at the meeting held on this date.

Messrs. CYPHER & SONS, Cheltenham, staged a collection of well-grown plants, principally of choice forms of *Cypripedium* species and hybrids, including *C. × Beekmannii*. (Silver Medal.)

A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), was awarded a Silver-gilt Medal for a small but choice group of plants, which included *Odontoglossum crispum* var. F. K. Sander, *O. × Primus*, *O. c. var. Dreadnought*, and a remarkable plant of *Cypripedium × Hindeanum*, for which a Cultural Certificate was awarded.

H. J. BROMILOW, Esq., Rainhill (gr. Mr. Morgan), staged a magnificent group of *Cypripediums*, the display occupying about 25 feet run of staging. Most of the plants were well-known hybrids and varieties.

O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers), showed *Cypripediums*, including some of the best-known and showy forms.

Messrs. SANDER & SONS, St. Albans, exhibited a small collection of their strain of *Cattleya Trianae*.

G. SHORLAND BALL, Esq., Burton, Westmoreland (gr. Mr. Herdman), was awarded a Silver Medal for a group of *Cypripediums*, the best of which was *C. × Earl Tankerville*. There were also several choice forms of *C. × Thompsonii*.

E. ROGERSON, Esq., West Didsbury (gr. Mr. Price), received an Award of Merit for *Cypripedium × Maurice*, the parentage of which is unknown.

E. ASHWORTH, Esq., Wilmslow (gr. Mr. Holbrook), gained an Award of Merit for *Cattleya Trianae* var. Ernest Ashworth, an albino form with a coloured lip, and having well-shaped segments.

Mr. E. V. Low, nurseryman, Haywards Heath, was awarded a Silver Medal for a collection of various Orchids.

A. J. KEELING & SONS, Westgate Hill, Bradford, were awarded a Bronze Medal for a miscellaneous group.

Messrs. A. & J. McBEAN, Cooksbridge, were awarded a Silver Medal for a group of well-grown plants, prominent in which were some good forms of *Odontoglossum crispum* Alexandræ × O. Pescatorei, and *Lælia anceps* Schröderæ var. Dusky Queen.

J. T. CLIFTON, Esq., Lytham (gr. Mr. Float), staged a large group, in which were many fine forms of *Lælia anceps* alba, *Cattleya Trianae* in great variety, and plants of botanical interest. (Silver-gilt Medal.)

N. GALLOWAY, Esq., Great Horton, near Bradford, was awarded a Silver Medal for a group composed mainly of well-known *Cypripediums*.

Mr. W. SHACKLETON, Bradford, staged a few well-grown plants of *Odontoglossums*.

Mrs. S. WOOD, Glossop (gr. Mr. Gould), was awarded a Silver Medal for a miscellaneous group, which contained a new and very interesting plant in *Trilumna* × *Gouldiana* (*Trichopilia suavis* × *Pilumna nobilis*). In character the hybrid is intermediate, the influence of both parents being distinctly traceable. The plant, which was raised by Messrs. Charlesworth & Co., received an Award of Merit. *Cattleya Percivaliana*, also from this collection, was given an Award of Merit.

J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes), staged a group of showy *Cattleyas* and *Lælias*, to which a Silver Medal was awarded.

LEEDS PROFESSIONAL GARDENERS' BENEFIT.

FEBRUARY 7.—This society held its annual dinner at the Green Dragon Hotel, Leeds, on this date.

Mr. William Green, J.P., for 45 years an honorary member of the society, presided. There was also present the Lord Mayor of Leeds.

According to the forty-third annual report the amount paid on account of sickness during the past year is somewhat larger than it has been for the past few years. Twenty-four members have received £96 18s. 9d. Two members and one member's wife have died during the year, the total amount paid out of the Sick and Funeral Fund being £123 18s. 9d.

The total accumulated funds amount to £1,672 9s. 5½d., an increase during the past year of £54 12s. 2½d.

Ten new members have been admitted, two have died, and four resigned, the present number being 151, an increase of four.

Mr. William Sunley, who joined the lodge at its formation, and was appointed its first secretary, filling that office for 33 years, died in his 81st year.

Acting on the advice of Mr. James Blossom, the valuer to the Order, the management has set apart the surplus of £63 for the purpose of extending the second period of sick allowance of five shillings per week, from 26 weeks to 52 weeks.

Also acting upon his advice, Rule 21 was amended, making it optional on the part of the committee to transfer any surplus from the Management Fund to any other fund of the lodge, instead of it being compulsory to transfer all sums above £50 to the Sick and Funeral Fund.

Mr. John Donoghue, in submitting the toast of the "City and Trade of Leeds," referred to the admirably kept parks and recreation grounds of the city, which were regarded throughout the country as some of the best examples of municipal gardening.

The Lord Mayor, in responding, made special reference to the selection of Mr. Allsop as one of the three selected candidates for the post of chief officer of the London County Council parks.

The Grand Master of the Grand United Order of Oddfellows, of which this society is now a branch, referred to the healthful occupation of gardeners, and complimented the society on its sound financial position.

Mr. Rowland Barran, M.P., referred to the opportunities afforded gardeners of becoming their own masters through the agencies of the

law on small holdings and town planning recently passed by Parliament.

Mr. Thomas Preece was elected chairman, Mr. John Donoghue vice-chairman, and Mr. Geo. Carver secretary for the coming year.

ROYAL GARDENERS' ORPHAN FUND.

FEBRUARY 11.—On this date the 23rd annual meeting of the supporters of this charity took place at Simpson's Restaurant, Strand. The Chairman of the Executive Committee, Mr. Henry B. May, was unable to be present owing to temporary indisposition. In his absence the Chair was occupied by Mr. W. Poupert. The attendance was poor, there being only two subscribers present beyond the members of the Executive Committee. This fact may merely be the result of public confidence in the committee, but, nevertheless, it is to be regretted that more members were not prepared for the personal sacrifice attendance would have imposed upon them, for the poor meeting might be easily taken to indicate want of interest in the objects of the fund.

The secretary, Mr. Brian Wynne, read the minutes of the last meeting and presented the report of the Executive Committee for 1909. This was as follows:—

REPORT OF THE EXECUTIVE COMMITTEE.

"The Executive Committee in this their twenty-first Annual Report have to state, with great regret, that they are unable to congratulate the supporters of the Fund on the maintenance of the year's receipts at the high level attained in 1908, although if certain generous gifts made in that year to mark the coming of age of the Fund be eliminated, a comparison of the accounts presented show that the regular income has been maintained—indeed, slightly increased. This the Committee consider most satisfactory and hopeful for the future, having regard to the fact that they, in common with the management of all charitable institutions, have had to experience an exceedingly anxious time. The net revenue of the year has, however, for the first time in the history of the Fund, been insufficient to meet the sum voted for allowances to the children. It will be in the recollection of the subscribers that at the last annual meeting a special wish was expressed that the success of the Coming-of-Age Festival should be celebrated by the election of all the candidates, 25 in number, and this was done, the Committee believing at the time that a larger measure of support would be forthcoming to justify the increased expenditure. Their anticipation has hardly been realised by the results, and hence it is that while the Committee would have been glad if the whole of the 19 candidates could have been placed on the Fund to-day, prudence compels them to limit the number to 15, in the hope that by another year they will have been provided with the means to increase the number of beneficiaries.

"At the commencement of the year 104 children were receiving the full benefits of the Fund, and to 27 candidates awaiting election compassionate allowances were being made, so great was their need of assistance. At the annual meeting 25 were added to the full pay roll, bringing the number on the books to 131. The total sum disbursed among the children during the year was £1,716 2s. 6d., or an increase on the previous year's allowances of £94 15s. The number of children

elected to receive the benefits of the Fund since its foundation is 278, and the total expenditure in weekly allowances and special grants made during the same period is £21,222.

"The Annual Festival, held at the Hotel Cecil on May 6, under the presidency of his Grace the Duke of Rutland, again proved both socially and financially a gratifying success, and greatly benefited the Charity. To the noble chairman, who so ably pleaded the cause of the Fund and its need of the generous support of all lovers of gardens and gardening, the Committee gratefully tender their heartiest thanks, and ask the subscribers this day to still further mark their appreciation of his kindness by electing him a vice-president. The Committee also gladly and cordially tender their best thanks to the stewards, who by their collections so materially increased the total amount of the chairman's list, and to all who so kindly by gifts of flowers and loans of plants on that occasion rendered the Victoria Hall so beautiful and so pleasing to the visitors.

"With regard to the next festival the Committee have the pleasure to announce that arrangements have been made for that annual function to take place at the Hotel Cecil on Thursday, May 19, and it affords them the greatest gratification, also, to know that they will have in the chair on that occasion such an enthusiastic lover and patron of horticulture as Sir Jeremiah Colman, Bart., D.L., J.P., of Gatton Park, Surrey. In the interests of the Fund and for the credit of horticulture, the Committee sincerely hope that they will have the support of all well-wishers of the Fund on that occasion.

"The Committee once more very gratefully acknowledge their large indebtedness for generous benefactions to Mr. N. N. Sherwood and his sons, Sir Frank Crisp, Mr. Leonard Sutton, Messrs. N. M. Rothschild and Sons, Mr. Leopold de Rothschild, Baron Schröder, Mr. Harry J. Veitch, Mr. Anthony Waterer, and other constant supporters.

"The Committee also gratefully acknowledge the receipt of a legacy of five pounds left by Mrs. Anne Clayton, wife of Mr. Henry J. Clayton, Wharfe Bank House, Ullerskelf, and formerly gardener at Grimston Park, Tadcaster, "in remembrance of her husband's early connection with the Fund."

"To the members of the Chesterfield Chrysanthemum Society, the Leeds Paxton Society, the Bradford Chrysanthemum Society, the Reading Gardeners' Mutual Improvement Society, the Reigate Chrysanthemum Society, the Tonbridge Gardeners' Society, the Scottish Horticultural Association, the Wargrave Gardeners' Society, and the Chislehurst Gardeners' Society, very hearty thanks are due for much valuable assistance received.

"New local secretaries have been appointed during the year at Leeds and Worcester. At Worcester Mr. Topham initiated a whist drive, with the most gratifying results; while Mr. Carver, assisted by several fellow gardeners in the Leeds district, organised a spring flower show which brought a welcome contribution to the Fund, and very materially helped to make the claims of the Charity more widely known in that part of Yorkshire. To these and all the other local secretaries the cordial thanks of the Committee are heartily accorded.

"With sincere regret the Committee have to deplore the loss sustained by the Fund by the death of such good workers on its behalf as Mr. William Roupell, Mr. Peter Barr, and Mr. Peter E. Kay, all of whom had served on the Committee. Mr. Roupell and Mr. Barr were elected to serve on the original Committee, and Mr. Roupell retained his seat until his death, ever a courteous, kind and enthusiastic colleague. On the death of Mr. Roupell the Committee unanimously appointed Mr. Edmund Rochford, a generous supporter of the Fund, to the vacant seat. By the greatly lamented death of Mr. J. H. Vallance, the honorary local secretary for Bristol and district, the Fund has also sustained a heavy loss.

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1909.

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
To Subscriptions: General ..	287	2	0	By Allowances to Orphans ..	1,571	0	0
Local Secretaries ..	95	18	9	" By Grants in Aid ..	119	2	6
				" "Emma Sherwood Memorial" ..	13	0	0
" Donations: General ..	121	7	4	" "Maybud Campbell Grant" ..	13	0	0
Local Secretaries ..	37	4	9				
				" Secretary's Salary ..	1,716	2	6
" Subscription List at Annual Dinner ..	860	16	3	" Printing and Posting List of Subscribers ..	200	0	0
Less Expenses ..	158	17	6	" Rent, Insurance, Firing, Lighting, &c. ..	43	12	2
				" Printing and Stationery ..	41	17	1
" Legacy: Mrs. Anne Clayton ..	5	0	0	" Advertising ..	5	12	0
" Advertisements in List of Subscribers ..	27	11	0	" Annual General and Committee Meetings ..	26	4	2
" Dividends on Stock and Interest on Deposit ..	370	13	6	" New Furniture and Cost of Removal ..	23	14	4
" Income Tax returned ..	5	8	8	" Postages ..	19	2	0
				" Bank Charges ..	2	12	3
" Balance last Account ..	968	17	4	" Petty Cash: Sundries ..	3	11	7
	£2,621	2	10				

NOTE—INVESTMENTS.

3 per cent. London and County Consolidated Stock ..	£7,240	15	10
3 per cent. Canada Stock ..	2,000	0	0
L. and N.-W. Railway 4 per cent. Preference Stock ..	340	0	0
Great Indian Peninsula Ry. Guaranteed 3 per cent. Stock ..	514	0	0
2½ per cent. Consols ..	1,000	0	0
"Thomson Memorial Trust"—East Indian Railway B Annuity of £14, cost ..	430	11	0
"Emma Sherwood Memorial"—Metropolitan Water (B) 3 per cent. Stock ..	516	15	11
"Maybud Campbell Grant"—Metropolitan Railway 3½ per cent. Preference Stock ..	301	0	0

.. Balances: Cash at Bank .. 352 10 4
Cash on Deposit .. 150 0 0
Cash in hand .. 2 12 3

505 2 7
£2,621 2 10

Having inspected the Securities and examined the Books and Vouchers supplied to us, we hereby certify the above Account to be correct.

P. RUDOLPH BARR } Auditors.
M. ROWAN

January 17, 1910.

"The members of the Committee who retire by rotation are Mr. William H. Cutbush, Mr. George Gordon, Mr. D. Ingamells, Mr. J. F. McLeod, Mr. R. Hooper Pearson, and Mr. E. Rochford, and who, being eligible, offer themselves for re-election. To fill the seats vacated by the resignations of Mr. William Bull and Mr. Parsons, the Committee recommend the election of Mr. Archibald R. Allan, gardener to Lord Hillingdon, Hillingdon Place, Uxbridge, and Mr. H. L. Wright, of the firm of Messrs. Parsons & Co., fruit salesmen, Covent Garden.

"The Committee again desire to place on record their high appreciation of the valuable services rendered by the auditors, Mr. P. Rudolph Barr and Mr. M. Rowan. Mr. Rowan is the retiring auditor, and having examined the accounts for some years and being thoroughly conversant with the working details of the Fund, his re-election is cordially recommended."

A resolution having been proposed by the Chairman that the report and balance-sheet be adopted, this was accepted unanimously. The meeting then proceeded to the re-election of officers, and the retiring members of committee. Mr. Brian Wynne was re-elected secretary with acclamation. After the disposal of this routine business, scrutineers of the ballot were appointed and the meeting was adjourned until 4.30.

On reassembling, the Chairman announced that the following 15 candidates had been duly elected:—

RESULT OF THE BALLOT.

Ivy Lillian Foster	...	...	409
Violet Powell Williams	...	...	319
Elsie Mary Sage	...	...	280
James Archibald Cameron Walker	...	...	280
Dorothy Sage	...	...	268
Jack Spratt	...	...	268
Frank Atkinson	...	...	257
Annie Beatrice Glide	...	...	229
Frederick George Evans	...	...	225
Mary Isabella Dickson	...	...	220
Grace Janet Gillies	...	...	213
David Dickson	...	...	200
Harry Johnson	...	...	190
Ernest Stead	...	...	175
John Walter Gough	...	...	172

The four unsuccessful candidates obtained votes as follows:—

William Norton Glide	...	...	160
Frederick John Moore	...	...	144
Maurice Leslie Johnson	...	...	125
Albert William Whitlock	...	...	67

This is the first occasion, since the election of 1905, that the committee has refrained from placing all the candidates on the fund. That only 15 candidates could be elected this year is due to two facts, namely, that the receipts during 1909 are not quite equal to those in the preceding year, and that the expenditure slightly exceeded the receipts. Votes of thanks to the scrutineers and the Chairman concluded the meeting.

In the evening members of the committee and a few friends, to the number of about 40, dined together at Simpson's under the chairmanship of Mr. N. N. Sherwood.

BRITISH GARDENERS' ASSOCIATION. RESOLUTION ON THE L.C.C. PARKS APPOINTMENT.

In connection with the recent appointment of chief officer of the L.C.C. Parks Department, the secretary has addressed the following communication to the Clerk of the London County Council:—

"I am directed by the Executive Council of the British Gardeners' Association to forward the following resolution, and to ask that you will kindly call the attention of your Council to it at their next meeting:

Resolved—"That this meeting of the British Gardeners' Association in Executive Council assembled desire to express their strong disapproval of the appointment of a military officer to the post of chief officer of the Parks Department, instead of a properly qualified gardener possessing the requisite technical knowledge and powers of organisation and control.

"JOHN WEATHERS, General Secretary."

The secretary has also sent the following communication to those persons who are offering themselves as candidates at the next L.C.C. election:—

"I am directed by the Executive Council of the British Gardeners' Association to ask if, in the event of your election to the London County Council, you will be good enough to use your

influence to secure the following recommendations of the British Gardeners' Association:—

"(a) To secure a minimum wage of 30s. per week for those gardeners employed by the London County Council who can produce the credentials of the British Gardeners' Association as to being duly qualified gardeners.

"(b) To secure an alteration of the system which allows the appointment of a military officer to the post of chief officer of the Parks Department—an appointment which, in the opinion of the Executive Council of the British Gardeners' Association, should be held by a properly qualified gardener possessing the requisite technical knowledge and powers of organisation and control."

LONDON BRANCH.

The monthly meeting of this branch took place at Carr's Restaurant, Strand, on Thursday, February 10. Mr. T. W. Winter presided. More than 50 members assembled to hear Mr. E. F. Hawes deliver a lecture on "The Value of Botany to Gardeners."

Mr. Hawes said a knowledge of botany was of service to a gardener, as it enabled him to understand plants better and to know their requirements. It also stimulated a gardener's interest, convincing him more of the dignity of his profession, and helping him to understand the whys and wherefores of things usually done by rule of thumb.

STIRLING AND DISTRICT HORTICULTURAL.

FEBRUARY 8.—A meeting of this society was held on the above date in the Y.M.C.A. Hall, Stirling. The president, Mr. Geo. Petrie, presided. The gathering constituted the largest attendance at any of these meetings, the lecturer being Professor M'Alpine, B.Sc. (Lond.), West of Scotland Agricultural College, his subject being "Plant Life Underground." The lecturer's remarks were illustrated by limelight views. The professor dealt with soils, roots, and plant foods. Eight new members were elected, and four nominations made for membership at the next meeting.

DUTCH BULB-GROWERS'.

The following varieties of Tulip were granted Awards of Merit at the recent meeting of the Tulip Committee of this society held at Haarlem:

La Discretion.—A seedling variety with single cherry-coloured flowers, having a broad, white border.

Golden Horn.—A new single-flowered variety, raised from the single early Tulip Rosamundi Huykman. The flowers are bright yellow and rose; a splendid forcing variety.

William Copeland.—An early flowering Darwin Tulip, especially good for forcing.

DEBATING SOCIETIES.

READING GARDENERS'.—The fortnightly meeting of this association was held in the Abbey Hall, Reading, on February 7. The president, Mr. Alderman Parfitt, J.P., occupied the chair, there being again a large attendance. Four new members were elected. The lecturer for the evening was Mr. Seaman, The Gardens, Margery Hall, Reigate, a representative of the Redhill and Reigate Gardeners' Association, his subject being "Mushrooms and How to Grow Them." Full details were given as to the preparation and spawning of the beds, gathering the crop, &c. The lecturer gave some interesting particulars respecting the culture of Mushrooms by a French firm in the galleries from which stone had been quarried at Godstone.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.—The newly-formed Elstree and Boreham Wood Horticultural Society has arranged a series of lectures on varied subjects. On the 8th inst. Mr. J. W. Odell, of Stanmore, gave an instructive lecture on "British Wild Flowers in the Garden." Mr. Odell illustrated his remarks by a series of lantern scenes, many of them depicting subjects photographed in the immediate neighbourhood, thus adding additional interest. There was a large and enthusiastic meeting.

GUILDFORD AND DISTRICT GARDENERS'.—A meeting of this society was held on February 1 in the Workman's Hall, Guildford. Mr. H. Tann presided, the company present numbering 52. Mr. W. P. Bound, a representative from the Redhill Gardeners' Association, gave a lecture on "Orchids."

SALISBURY AND DISTRICT GARDENERS'.—At the meeting of this society held on the 6th inst., a paper was given by Mr. Tunnington on the "Cultivation of the Peach and Nectarine."

BRISTOL AND DISTRICT GARDENERS'.—A well-attended meeting of this association was held on February 10, at St. John's Parish Rooms, presided over by Dr. Shryleton Smith. A paper upon "Indoor Ferns," was given by Mr. Halliburton, a representative of the Bath Debating Society. Mr. Halliburton said strong sunlight is detrimental to Ferns, except such kinds as Gymnogrammes. Fresh air should be admitted freely in the growing season, and the plants also require an abundance of water with liquid manure and soot-water at intervals. Spring is the best time for general potting and overhauling of these plants. Dr. Smith, who opened a discussion on the paper, mentioned that there had been found over 900 varieties of tree Ferns in the coal measures, only one of which is extant.

CHESTER PAXTON.—A large number of members were present on Saturday, February 12, to hear Mr. Ernest Jones read a paper on "The Cultivation of Sweet Peas." Mr. E. Stubbs presided. Mr. Jones gave full details of his method of cultivating this popular flower. A discussion followed.

CROYDON AND DISTRICT HORTICULTURAL.—The Dressing of a Chrysanthemum Bloom for Exhibition was the title of a lecture delivered before the members of this society on the 1st inst. by Mr. M. E. Mills, Coombe House Gardens. Mr. W. Collins, Croydon, was to have given a lecture on "Chrysanthemums for Grouping," but he was unable to do so owing to indisposition. Mr. Mills said, to produce exhibition blooms of Chrysanthemums the bracts on the upper portion of the stem and below the bud should be removed before the plants are taken indoors. The wings of the leaves just below the bracts must be removed with a sharp knife. This removal increases the vigour of the flower and deprives black aphids of a resting spot; it also allows the petals to develop without hindrance of compression.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending February 12, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Over the greater part of the kingdom a certain quantity of precipitation was experienced almost every day, and the general character of the weather was very unsettled. Intervals of bright sunshine were, however, frequent in most parts of England and Ireland. Thunder occurred at Jersey on Thursday and at Douglas on Friday, while lightning was observed some time during the period at a few other stations.

The temperature was above the average except in Scotland N., the greatest divergence from the normal being 3.3° in England E. The highest of the maxima were recorded at most stations on the 6th, and ranged from 58° in England N.W., and 57° in Ireland S. to 51° in Scotland N. and E. The lowest of the minima, which were registered in nearly all districts either on the 9th or 10th, ranged from 9° (at Balmoral on the 9th) and 20° in Scotland W. to 29° in Ireland S., and to 31° in the English Channel. The lowest grass readings reported were 6° at Balmoral, 10° at West Linton, 15° at Crathes and Cambridge, 18° at Kew and 20° at Clacton-on-Sea and Southport.

The mean temperature of the sea.—As a general rule the water was colder than during the corresponding week of last year, the difference being at least 3° at Wick, Cromarty and Burnmouth. The means for the week ranged from 48° at Newquay, and 46° at Plymouth and Salcombe to 42° at Ballantrae, about 40° at several stations along the east and north-east coasts of Britain, and about 37½° at Cromarty and Burnmouth.

The rainfall was more than the average in England N.W., S.W., and N.E., as well as in Ireland N., but less elsewhere. Few individual falls as large as 0.5 inch were recorded, but at Stonyhurst on Sunday there was as much as 1.19 inch, and at Arlington on Monday 1.07 inch.

The bright sunshine exceeded the normal except in Scotland N. and W. The percentage of the possible duration ranged from 36 in Ireland S., 35 in England E., and 34 in the English Channel to 19 in Scotland W., and to 10 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending February 16.

Warm, wet, and sunny.—Throughout the past fortnight there has not occurred a single unseasonably cold day, while on four days the highest reading in the thermometer screen rose to, or exceeded, 50°. The nights during the same period proved very variable. On the warmest day of the past week the highest reading was 51°, and on the two coldest nights the exposed thermometer registered 13° of frost. Both at 1 and 2 feet deep the ground is at the present time about 1° warmer than is seasonable. Rain fell on all but two days, and to the total depth of rather more than three-quarters of an inch. About 3½ gallons, or virtually the whole of the rainfall, came through both percolation gauges during the week. The sun shone on an average for as much as 4 hours 8 minutes a day, which is 1½ hours a day in excess of the February average. The winds were, as a rule, rather high, but in no hour did the mean velocity exceed 17 miles—direction S. The average amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 5 per cent. E. M., Berkhamsted, February 16, 1910.

SCHEDULES RECEIVED.

Canterbury and Kent Rose Show, to be held on Thursday, June 30. Hon. secretary, Mr. C. C. Williamson.

Sandiway and District Horticultural Society's fifth annual exhibition, to be held on Monday, August 1. Secretary, Mr. W. May, Sandiway Lodge Gardens, near Northwich.

Guildford and District Gardeners' Mutual Improvement Society's programme of meetings, to be held in the Workmen's Hall, Chertsey Street, Guildford, during 1910.

Elstree and Boreham Wood Horticultural Society's programme of meetings, shows, and lectures, for session 1910.

Obituary.

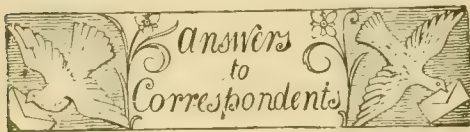
JOHN STOPPS.—Our readers will learn with regret of the sudden death of this well-known gardener, which occurred at Barrowash, Derby, on January 28. Mr. Stopps was especially skilled in the culture of Chrysanthemums, and was well known as an exhibitor of these flowers, but he was also a good all-round gardener, and won many prizes at flower shows for fruit, flowers, and vegetables. He commenced his gardening career at Aston Rowant, Oxfordshire. Mr. Stopps leaves a widow, one son, and one daughter.

ALEXANDER H. STIRRAT.—The news of the death, on February 6, at the hospital, Johannesburg, of Mr. Alexander H. Stirrat, superintendent of the parks and Zoological Gardens of that town, and occasional correspondent to these pages, will be received with regret by his many friends in this country, and especially at Falkirk, of which town he was a native. He served his apprenticeship in the nursery of his father at Falkirk, and afterwards obtained an appointment in the Botanic Gardens, Glasgow. Whilst at Glasgow, he made himself proficient in the sciences connected with his calling. In 1900 he emigrated to South Africa, and shortly after his arrival he was appointed to the post which he held at the time of his death. He frequently received the thanks and congratulations of the Corporation of Johannesburg for the able manner in which he conducted the parks and gardens under his charge. Mr. Stirrat was only 33 years of age. The remains were accorded a public funeral amidst many manifestations of regret.

ENQUIRIES AND REPLIES.

"NURS-GARDEN" (see p. 112).—This was a dwarf sort of Apple, which was planted in espaliers along the sides of walks with other dwarf-growing Apples and other fruits. The trees were propagated by branch cuttings similarly to Codlins and Bunknots, and are mentioned in *A Treatise of Fruit*, as well as in the *Observations*. These are the only works in which I have noticed the term, and not improbably it was a local variety. Austen, however, may have mistaken the name, as he did that of the Provence Rose, which he twice calls "Provost." R. P. B.

TO DESTROY TREE STUMPS.—I have some land covered with scrub and old tree stumps. It is too expensive to grub these out, therefore I should like some information as to the best method of blowing them up. Is dynamite or black powder the better explosive to use? The stumps I have to deal with are about 2 feet to 2 feet 4 inches in diameter. Will some reader inform me of the approximate cost of blasting these? H.



ASH SEEDLINGS FAILING: W. F. & Co. The trees are affected with the early stages of Ash canker, caused by a bacterium. No cure is known. Diseased plants should be destroyed.

BEGONIA GLOIRE DE LORRAINE: W. S. This variety was raised by Messrs. V. Lemoine & Sons, of Nancy. It is stated to be a hybrid between *B. socotrana* and *B. Dregei*. The plant did not, at first, find favour in France, but it soon became popular in this country, and in 1893 received a First-class Certificate from the Royal Horticultural Society. You will find further particulars in the issue for February 1, 1902, p. 75.

BLACK HAMBURG VINE: H. H. The portion of root you send is quite rotten. The trouble cannot be ascribed to any special fungus disease, but is due to a general unhealthy condition of the vine. The callus-like out-growths which have developed on the spurs all point to some trouble from unhealthy root action. As you say the fruit for years has been worthless, the berries being badly coloured, without flavour and shanked, it will be well to destroy the vine and plant a fresh one in its place.

However, having lifted the roots, and, we presume, having furnished some fresh, sweet soil, you may expect a better crop next year. But the results will not be permanent unless the border was thoroughly overhauled, and especially the provision for drainage, as a water-logged border is usually the cause of shanking. The little worms which you point out as being present on the decayed root, are only an after effect.

BLUE-FLOWERED HYDRANGEAS: H. J., Bristol. Locality and soil appear to be some of the determining factors in the colour of these flowers. A situation near the sea is considered the most favourable for producing flowers of a blue shade. It has been claimed that alum in water will cause the flowers to become blue. If you will refer to the issues for February 2, 9, 16, 23, and March 2, 1907, you will find much correspondence on the subject.

CHRYSANTHEMUM RUST: A. F. Spray the plants with a solution of potassium sulphide, made by dissolving 1 ounce of potassium sulphide or liver of sulphur in a quart of hot water, and making up with $2\frac{1}{2}$ gallons of water. Pluck off and burn the worst affected leaves. Some persons have been successful in combating the disease by treating the plants with paraffin in water.

CROCUSES: B. and S. The condition is due to an extraordinary development of the outer scale leaves, and consequent partial suppression of the other parts.

FLORISTS' FLOWERS: X. L. B. We consider it unfair for any firm to advertise that they are supplying your strain of a particular plant unless they purchase seed from you each year, because your work of selection being still in progress, it is impossible for a firm to acquire your latest strain merely by raising seedlings from plants you may have sold to them several years ago. It is only reasonable to assume that purchasers of seed bearing your name expect to be supplied with the latest varieties you have raised.

FORCING HOUSE FOR LILIES: A. R. If you intend to force varieties such as *Lilium longiflorum* and *L. speciosum*, the width of your house, viz., 10 feet, would scarcely be sufficient, because it would necessitate the walls supporting the roof being disproportionately high. Whereas these tall-growing species would require a considerable amount of head room, the dwarf kinds would be too far from the glass, therefore we suggest the house should be wider. It is not necessary to make provision for a "cased pit" unless you intend to force *Lily-of-the-Valley*. *Liliums* of all kinds do better when they are permitted to form roots before introducing them into the forcing-house. However, for the early forcing of *Lilium longiflorum* and its varieties, as well as *Lily-of-the-Valley*, a house such as you suggest would do quite well. But for species of taller growth, we suggest a width of 18 feet or 20 feet, which will allow room for side beds and a large central one.

FORCING STRAWBERRIES FOR MARKET: J. F. J. You ask us if this is a remunerative business. That depends on many considerations. In the first place you will need business acumen and forethought as well as ability to cultivate the plants. You must have a knowledge of markets, and know the season when forced Strawberries are especially required. Then you must be prepared to have other crops to precede and follow the Strawberries, so that the houses are profitably utilised all through the year. When all this has been assured, you may experience a poor market or a bad crop. However, when these points have been considered, you may be comforted with the knowledge that many growers cultivate Strawberries at a profit. With regard to varieties for forcing, you cannot do better than consult the Strawberry Census, given in our issues for October 16, 23, pp. 260, 283. From this you will find the varieties best for that purpose are Royal Sovereign, Vicomtesse Hericart de Thury, Président, La Grosse Sucrée, Sir Joseph Paxton, and Leader.

LIME FOR EXAMINATION: H. C. As far as we can tell, the sample of lime you send appears to be suitable for garden purposes. We do not, however undertake the analysis of such mate-

rials. It will be better to sprinkle it on fallow ground or see that it does not come in direct contact with the plant. In any case, it should be forked into the soil lightly.

MANURE COVERED WITH FUNGUS: J. H. C. The fungus may be destroyed by quicklime, which should be sprinkled over the soil and manure. Also wash the frames over with a solution of bluestone— $\frac{1}{4}$ lb. to one gallon of water.

NAMES OF FRUITS: W. H. S. Apple Broad-eyed Pippin.

NAMES OF PLANTS: Inverness. *Lopezia lineata* (miniata).—A. G., Cheshunt. 1, *Ceclogyne cristata*; 2, *Cypripedium insigne*; 3, *Epiphyllum Russelianum*; 4, *Libonia floribunda*.—W. H. K. 1, *Codiaeum Weissmannianum*; 2, *C. Johannis*; 3, *C. angustifolium*; 4, *C. interruptum*; 5, *C. trilobum*; 6, *C. elegantissimum*.—T. F. S. *Catasetum macrocarpum*.—H. S. One of the garden forms of *Veronica Andersonii*, *Aucuba japonica* female, and *Epiphyllum Russelianum*.—G. *Dendrobium Wiganianum*.—D. H. R. 1, *Polypodium frigidum*; 2, a barren frond of *Pteris* (*Doryopteris*) *nobilis*; the fertile ones are divided like those of No. 5; 3, *Asplenium flaccidum*; 4, *Polypodium percussum*; 5, *Pteris* (*Doryopteris*) *palmaria*; 6, *Asplenium lucidum*.

NURSERY OR MARKET GARDEN BUSINESS: F. M. The answer to your question would entirely depend upon the amount of technical knowledge, energy, and available capital you possess. There are plenty of instances to show that a trade is never so fully represented in a district but opportunities exist for new-comers. It very frequently happens that enterprising men, who are capable of introducing new methods, not only succeed in gaining a full share of business patronage, but excel even those who have been established for a long period. Bearing in mind these facts, the matter is one that you must determine for yourself. In either case, whether you wish to obtain a nursery or purchase a retail business, the best means for you to adopt is to make your requirements known to the public by advertising them.

PRIMULA OBCONICA: P. Amateur.—No disease is present. The injury has been caused by heat from the hot-water pipes. The plants should occupy some other position.

ROSES PLANTED TOO DEEPLY: Amateur. The re-planting is advisable, and may be done directly the weather and ground are suitable. You will find directions for planting in the issue for February 12, p. 99. Retain as much soil as possible about the roots. With regard to the pruning, this will depend on the class of Rose, and this you have not stated. If they are ordinary hybrid Perpetual varieties, they may be pruned after planting, but tender kinds, such as Tea Roses, should be pruned later. Ramblers need only the weaker shoots and old-flowering branches removed.

SOUVENIR DE LA MALMAISON CARNATIONS: F. R. The trouble is not due to disease. There are indications that the rooting medium has been kept too moist during the dull months—a common mistake. Carnations during winter should never be subjected to much wet, it being safer to err on the side of dryness at the roots. The pot should always "ring" well when struck with the knuckles before applying water.

VINE LEAVES WITH MARKINGS: B. Somerley. A fungus has lodged on damp spots on the leaves and caused the discoloured patches. Ventilate the house early in the morning.

VIOLETS DISEASED: E. P. & J. G. W. The plants are attacked by a fungus disease, *Ascochyta violæ*. It would be better to burn your plants and start afresh, after thoroughly cleansing the frames in which they have been grown and removing the old soil to some distant part of the garden.

"WORM" FOR IDENTIFICATION: W. E. Your "worm" is a leech, known as *Aulostoma gulo*, or Horse-leech. The box also contained a grub, the larva of one of the sawflies not far removed from the Gooseberry sawfly.

Communications Received.—C. T. D.—J. B. & Son, Ltd.—D. H. R.—R. D.—J. W. T.—J. K.—J. R. B.—J. D.—D. M. C.—W. H. Y.—G. W.—F. M.—L. J. C.—A. R. S.—W. E.—R. Newstead—J. J. W.—J. P. W. New Jersey—S. S. Budapest—P. H. C.—A. P.—B. G.—Royal Meteorological Society—H. W. F.—F. G. D.—Dutch Bulb Growers Society—T. Mac Row—W. F.—A. D.—E. H. J.—F. G. W. Chloris—J. S.—W. W. P.—Dr. F.—Rev. B. E. W.—J. O'B.



Photograph by George F. Jones.

RHODODENDRON LUCIDUM, GROWING WILD IN ITS CHINESE HABITAT.

THE Gardeners' Chronicle

No. 1,209.—SATURDAY, February 26, 1910.

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AMERICAN HAWTHORNS.*

SOME NEW ARBORESCENT SPECIES.

THE different species in the Molles group are distinguished mainly by subglobose to obovate fruits, deep scarlet, pubescent at the ends, and occasionally hairy all over; flesh, thick and succulent, and usually palatable; corymbs, hairy to densely tomentose; leaves, thin, broad, cuneate, rounded to truncate at the base.

The following species are included in this group:—

CRATEGUS ARNOLDIANA.—This species assumes the dimensions of a small tree, 20 to 25 feet in height, with a short trunk 12 inches in diameter, and with stout branches usually ascending at an angle of about 45°, and forming an oblong, open head. The broadly-ovate to oval leaves are cuneate or rounded at the base; they are 3 inches long and 2½ inches broad. The 10-stamened flowers, with large cream-white anthers, are produced on many branched, tomentose corymbs and blossom about May 25. The subglobose to oblong fruits are bright crimson, and marked towards the ends by numerous white hairs; they ripen about the middle of August and fall before September 25. This, the first species in the Molles group to ripen its fruits, matures its berries at the same time as *C. maturæ* and *C. præcox*, two shrubby species in two other groups, which are the earliest species to ripen their fruits in the north-eastern states. When an adult tree of *C. Arnoldiana* is covered with its lustrous, brilliant fruits at the end of August it looks very beautiful, and I remember seeing it

for the first time in its handsome fruitage at the Arnold Arboretum eight years since. When this species was first described by Dr. Sargent, it was only known by a few specimens growing in a wild state in the Arnold Arboretum, but during the past few years it has been found distributed through Massachusetts.

C. ARKANSANA.—This plant attains a height of 25 feet, with a central stem branching low, and the stiff, stout branches ascending and spreading, forming a distinctively open head. Perhaps it has a thinner branching habit than any other known species in the Molles group. The oval to oblong-ovate leaves, broadly cuneate at the base, are 3 inches long and 2 inches wide, and on vigorous shoots are much larger. The 20-stamened flowers, with cream-white anthers in their branched, densely-tomentose corymbs, blossom about May 25. The bright crimson, oblong, and occasionally obovate fruits, rounded at the ends and slightly hairy, with a deep but comparatively narrow calyx cup, ripen from the middle to the end of October, and persist on the branches for a number of weeks. It is said to be a common species in Arkansas, but it was first observed by Dr. Sargent in the Arnold Arboretum, in cultivated plants raised from seeds collected about 26 years since by George Letterman at Newport, Arkansas. There are handsome individuals in cultivation in the Arnold Arboretum, and Franklin Park, Boston.

C. CHAMPLAINENSIS.—It is common to see specimens of this tree 20 feet high, but occasionally the species attains a height of 25 feet, with a stem 12 inches in diameter at the base, and a symmetrical, wide-spreading head. The ovate leaves, slightly rounded, truncate and sometimes on vigorous shoots, slightly cordate at the base, are 3 inches long and 2½ inches wide. The 10-stamened flowers, with small, cream-white anthers, are borne in densely villose corymbs, and open about May 30. The obovate to oblong bright scarlet fruits, pubescent towards the ends, ripen about the middle of September, and are persistent on the branches until almost mid-winter, but considerably shrivelled before they drop. The type tree grows in the Champlain Valley. It is a common species throughout Ontario, Canada, and along the valley of the St. Lawrence River. A remarkably well-developed tree, from 25 to 30 feet high, grows on a private estate in Portsmouth, a suburb of Kingston, Ontario, Canada. This is a very important Molles species in displaying its handsome fruits so late in the season.

C. ELLWANGERIANA (fig. 58).—This species attains the dimensions of a very handsome, shapely tree, 20 to 25 feet high, with a trunk 6 feet in length, and from 12 to 15 inches in diameter at the base. In juvenile plants the branches are disposed somewhat in tiers, and suggest very much the habit of *Cornus alternifolia*. The leaves are ovate, and on fertile shoots frequently almost circinate, round to truncate at the base, and on young shoots often subcordate at the base, 3 inches long and 2½ inches broad. The 7-10-stamened flowers, with rose anthers, are produced on 9-12 flowered, densely-villose corymbs, and blossom from May 20 to 25. The short-oblong, lustrous, bright red fruits ripen about the second week in September, and fall about the first week in October. The

type tree, which is perhaps over 100 years old (shown in the illustration, fig. 58), grows spontaneously in the home grounds of the Ellwanger and Barry Nurseries, Rochester, N.Y. It is a very common species in the Genesee Valley, and throughout Western New York and Western Pennsylvania, and the writer lately found it distributed along the valley of the St. Lawrence River as far east as Ogdensburg, N.Y. It has one distinguishing specific mark, which may appear trifling, but is nevertheless constant in all individuals. The stipules of the upper leaves where they intermingle with the base of the corymbs remain persistent and green until the fruit ripens. This handsome Hawthorn was named by Dr. Sargent in compliment to the late George Ellwanger, the distinguished nurseryman, of the firm of Ellwanger & Barry, Rochester, N.Y., whose ability and skill had a strong and uplifting influence on American nursery interests and horticulture.

C. FULLERIANA.—This is commonly an arborescent shrub, and rarely attains the size of a small tree, from 15 to 18 feet high, with ascending and spreading branches, forming a somewhat compact head. The leaves are oval to ovate, rounded at the base, 3 inches long and 2½ inches wide. The 20-stamened flowers, with rose anthers, on compact, densely-villose corymbs, blossom about May 28. The short-oblong, lustrous, scarlet fruits, with markedly pale dots, and the calyx cup, with a very broad base, ripen about the middle of September and soon fall. The type plant grows on the steep clay banks of the Genesee River, on the north side of the City of Rochester, N.Y., and is distributed throughout the Genesee Valley. It has not yet been reported from beyond these regions.

C. MOLLIS.—This species grows to a tree of considerable size, attaining a height of 40 feet, with a tall stem, from 12 to 18 inches in diameter, and forming a very broad, shapely head. The leaves are broadly ovate, rounded to subcordate at the base, 4 inches long and 3½ inches wide, and on vigorous shoots often much larger. The large, showy flowers, with 20 stamens, and cream-white anthers, are borne on many-flowered villose corymbs, and blossom about May 25. The short-oblong to subglobose fruits, bright scarlet and marked by dark dots, ripen during the first week in September. It occurs in a wild state from Ohio to Dakota and throughout Kansas. I have not seen it growing naturally, but I have observed it in good condition on Dr. Sargent's estate in Brooklyn, Mass. As a matter of fact, the specific name *mollis* has been applied for a great many years to a large number of entirely different species of American Hawthorns in this country and in Europe, with the general appearance of the true *C. mollis*. The species in question, the *C. mollis* of Scheele, described many years since, has, to the best of our knowledge, been determined by Dr. Sargent from the examination of authentic herbarium specimens to be undoubtedly this species. Under the latest scientific interpretation of American Hawthorns, *Crataegus mollis* means something quite definite and entirely different from what is usually understood.

C. RADIAN.—This plant is a tall, many-stemmed arborescent shrub, with spreading branches, forming an open, thin, irregular

* For previous article on the group "Flabellatae" see *Gard. Chron.* Oct. 30 and Nov. 6, 1909.

head. The oval to ovate leaves, rounded or cuneate at the base, and truncate on vigorous shoots, are from 4 inches long to $3\frac{1}{2}$ inches wide. The 15 to 20-stamened flowers, with dark-rose or purplish-red anthers, are borne on densely pubescent 10 to 15-flowered corymbs, and blossom about May 25. The short-oblong, crimson, lustrous fruits, distinctly rounded at the end, and markedly covered with pale hairs, ripen towards the end of September, and fall about the middle of October. The type plant grows in the town of Greece, a few miles west of Rochester. From present indications, this species is only known in this locality.

C. SPISSIFLORA.—This species frequently makes a tall arborescent shrub, and occa-

first of October. In its dense, compact head and showy, large scarlet fruits in September, this species is a cynosure in any ornamental grounds where it may happen to be situated. The type tree grows on the banks of the Genesee River, in Genesee Valley Park, Rochester, N.Y. It is a common species in the Western part of the State of New York and in Ontario, Canada. A large nursery in this country has for many years been selling this species under the name of *C. mollis*, of course in perfect good faith, and, undoubtedly, at this time there are hundreds of plants in private ornamental grounds and parks in the United States and in Europe, of *C. spissiflora*, under the name of *C. mollis*, from this dissemination.

of Montreal. It is distributed from Montreal to Boston. If my memory is correct, it grows spontaneously on Dr. Sargent's estate in Brooklyn, Mass. The species was discovered last year growing in the vicinity of Canandaigua Lake, 30 miles south of Rochester, N.Y. *John Dunbar, Rochester, N.Y., U.S.A.*

THE ROSARY.

A FEW GOOD NEW ROSES.

I CAN speak of the following new Roses as they have behaved with us; but it may be mentioned that novelties must have very excellent qualities before they can excel the splendid Roses already



FIG. 58.—*CRATÆGUS ELLWANGERIANA* IN THE NURSERIES OF MESSRS. ELLWANGER AND BARRY, ROCHESTER, U.S.A.

(See p. 129.)

sionally a small tree, 15 to 20 feet high, with upright branches, forming a dense, compact, oval head. The leaves are oblong-ovate to ovate, slightly rounded, to cordate at the base on young shoots, with deep acute lateral lobes, $3\frac{1}{4}$ inches long and 3 inches wide, and on vigorous shoots much larger. The 10-stamened flowers, with rose anthers, are produced on five to eight-flowered pubescent, very short pedicelled corymbs, and blossom about May 20. The large, full, subglobose to short-oblong, lustrous, scarlet fruit begins to colour conspicuously about the middle of August, but it is not fully ripe until about the middle of September, and falls about the

C. SUBMOLLIS attains a height of about 30 feet, with a trunk 12 inches in diameter, and wide-spreading branches, forming a very broad head. The leaves are ovate, cuneate at the base, and are always distinctly rounded at the base even on vigorous young shoots, 3 inches long and $2\frac{1}{2}$ inches wide. The 10-stamened flowers, with small cream-white anthers, are borne on many-flowered tomentose corymbs, and they blossom about May 20. The obovate, pear-shaped fruits, which are bright, lustrous orange-red, ripen about the second week in September, and soon fall. It is not quite certain where the type plant of this species occurs, but it is probably in the neighbourhood

in commerce. Those mentioned below are the very best of the Roses most recently distributed.

JONKHEER J. L. MOCK (H.T.).—This variety is particularly well spoken of on the Continent, and is reputed to be a cross between Caroline Testout and Mme. Abel Chatenay, crossed again with *Farbenkönigin*. The two first parents are extra good, and the colour of this seedling comes between the two. The flowers are carried well, are of good form and size, and retain the extra sweetness of Mme. Abel Chatenay.

MAMA LOOYMANS (Dwarf Polyantha).—This Rose provides a much-desired colour in this very useful bedding class, and may, perhaps, be best

described as a dwarf and miniature flower of the well-known Gruss an Teplitz. It keeps its colour well, and does not exhibit the dull magenta shade that is found in the older flowers of Mme. Norbert Levavasseur as it ages.

CHRISTIAN CURLE (Hybrid Wichuraiana).—This is one of the best among several recent sports from Dorothy Perkins. The flower is a clear, flesh pink, exactly the shade found in Carnation Duchess of Fife; but in all other respects the flower resembles the type that furnished the sport. The shade is very attractive, and it will be welcomed by florists.

MRS. ALFRED WESTMACOTT (Tea).—This variety is the product of two very free-flowering parents in G. Nabonnaud and Mme. Constant Soupert, and, like them, carries an upright and long-pointed flower; especially showy and useful in the bud stage. A pale white, deeply tinted with blush rose, with a slight touch of yellow on the back of the petals. Like its parents, this Rose is exceptionally free-flowering, and will always open well.

HIS MAJESTY (H.T.).—This Rose is infinitely better than Barbarossa, a Rose that was sent out as a red Frau Karl Druschki, but which I have already decided to cast out from my collection. His Majesty is a noble Rose in every way, and has also been styled the Crimson Druschki. We get the intense scarlet and crimson found in Duchess of Bedford, and with sweet perfume added to the good qualities of Frau Karl Druschki, which it much resembles in shape and size. It won the National Rose Society's Gold Medal in 1908.

LADY ALICE STANLEY (H.T.) also secured a Gold Medal in 1908. This is a deep coral-rose, with a much lighter centre. One of the few that are suitable for exhibition and for general decoration.

MRS. ALFRED YATE (H.T.) will soon become one of the most popular decorative Roses. The buds are extra long, and open well. Unlike most of the few-petalled Roses, this variety does not lose its cupped shape and fly at the approach of strong light. A very showy, coppery-red, shaded with fawn.

MRS. EDWARD J. HOLLAND (H.T.) is a deep, salmon-shaded rose, with lighter edges. In size, substance and form this Rose is first-class.

MRS. WAKEFIELD CHRISTIE-MILLER (H.T.) carries its large, well-formed blooms very boldly and erect. A clear rosy-vermilion, with salmon centre; quite distinct, an excellent grower, and said to be proof against mildew.

CHIN CHIN (China).—A yellow variety of this class that was greatly to be desired. In every way Chin Chin is as good a grower and free bloomer as Mme. Eugene Resal, from which it sported. As a yellow bedder, or for masses, this is grand. It keeps its colour—sulphur-yellow—clear up to the last.

WHITE KILLARNEY (H.T.).—This is an American-raised sport from Killarney, and has all the grand qualities of that superb Rose, but is said to be a little better in all respects. It is undoubtedly one of the purest whites, and a grand Rose for forcing, besides having the advantage over Frau Karl Druschki of being more compact in growth for beds and pot culture; it is sweet-scented.

MY MARYLAND (H.T.) is a very promising Rose, and, in colour, is the clear rose-pink found in the variety Bridesmaid. The raisers claim that it will excel this grand variety; but, for it to do this, it must be better than I have yet seen it, good Rose as this variety undoubtedly is.

SIMPLICITY (H.T.) is a semi-double, pure white flower. The flowers are very large, and its immense petals are distinctly cupped, much like a white Water Lily. The golden anthers are exceptionally clear and showy. A grand pillar Rose.

I intended to confine myself to a dozen new varieties, but do not know which to omit. All are sure to please, and I consider them quite distinct—an important point among the many new Roses annually sent out. *Grower.*

TREES AND SHRUBS OF NEW ZEALAND.

(Concluded from page 118.)

The Araliaceæ are well represented in New Zealand, but the one, really striking example is Panax arboreum, a much-branched shrub or small tree from 12 to 20 feet high. It is dioecious, and the handsome panicles of dark fruit are very abundant and persistent, suggesting semi-tropical luxuriance. The habit of the plant is also good.

The Coprosma family has its headquarters in New Zealand, but its members are rigid or untidy shrubs, all dioecious, with inconspicuous flowers. The fruit of *C. robusta* is a fine orange colour, while the small berries of *C. acerosa* are a translucent sky-blue.

Of shrubs of open situations, *Coriaria ruscifolia* or Tutu, colloquially "Tut," is the most conspicuous, sending up long, single shoots, which are, in their young stage, very poisonous to cattle. The pendant racemes hang from the ends of the branches, and the flowers are succeeded by black pseudo-fruits, the fleshy parts of which are formed by the enlarged petals. *Coriaria angustissima* is a charming, little, montane plant, recalling *Asparagus Sprengeri* in habit; it would prove most useful as a foliage plant in a garden, or for covering waste areas.

The Tiliaceous *Aristotelia racemosa* (Makomako), which springs up where the forest has been cleared, has delicate leaves with reddish undersides, red bark and bell-like, rose-pink flowers, in terminal axillary panicles. It is dioecious, the male flowers being the finer. It would probably prove deciduous with us, in which case the colour of the bark would give a good winter effect. In *Aristotelia fruticosa* the habit is more rigid and the flowers very small, but the berries are of a most exquisite, pink colour, which made this species a lovely sight in the Arthur and Clinton valleys in March. I believe that the colour, so exceptional in berries, turns darker as the fruits ripen.

Gaya Lyallii, which grows in profusion on the edge of the montane, Beech forests, is a glorious, Malvaceous shrub, clothed in bridal showers of white flowers, each over an inch across, and borne on long pedicels. It is deciduous in the colder parts of the South Island. *Gaultheria rupestris*, ranging from 2 to 3 inches to 3 to 4 feet, is neat in habit and a profuse flowerer, with compound, pyrola-like racemes.

Of the Epacridæ, the Dracophyllums (Neinei) are botanically most interesting, the 18 New Zealand species, all endemic, varying from the branching, aloe-like habit of *D. latifolium*, which is 20 feet or more in height, with leaves in terminal rosettes, over a foot in length and with compound, flowering panicles exceeding the leaves, to *D. muscoides*, a high level, carpeting (polster) plant an inch or two high. Horticulturally, however, they would not repay introduction. The Olearias and Veronicas are two large genera sufficiently well known in this country. I may mention *V. macrantha*, very common at 2,300 feet in the Mount Cook district, the finest of all, about 2 feet high, with clear white flowers nearly an inch across, in small, axillary racemes, and glaucous, thick, serrated leaves, as offering a welcome exception to the monotonous character of this family.

In the Leguminosæ, *Carmichaelia*, a genus confined to New Zealand, contains quite charming species, their green, assimilating stems recall our Broom, and bear minute mauve blossoms. *C. australis*, *grandiflora* and *flagelliformis* came under my notice. They are most amenable to culture, some plants in Professor Chilton's garden in Christchurch were flowering profusely in December.

Of climbing shrubs, the Apocynaceous *Parsonsia heterophylla*, abundant everywhere, resolves itself into a sheet of small, white racemes of bell-like blossoms. I saw it in October making a splendid show in Mr. Cheeseman's garden at Remuera, near Auckland, where he has many fine native plants doing well. *P. capsularis* is a

delicate little plant of more retiring habit. The three endemic *Rubi*, *R. schmidelioides*, *R. australis* and *R. cissoides* are all dioecious, with white flowers and glossy, green leaves, the male being the larger flowered. In *R. cissoides*, on exposure, after the forest growth has been cleared, the tri-foliate leaves are reduced to the mid-ribs of their respective leaflets, the plant presenting an extraordinary appearance. In time, however, the laminae very gradually reassert themselves. All these *Rubi* have yellow fruit.

Freycinetia Banksii as an epiphyte would form an interesting addition to southern gardens if it could be acclimatised. The flowers are handsome, the spikes being enclosed in two or three, large, milk-white, fleshy bracts, which expand round them. These bracts make a delicious salad. Some of the *Astelias* should also be quite hardy, and would afford a welcome variety to the usual rock-garden types.

For altitudinal range, geographical distribution, native names and systematic information, I am entirely indebted to Mr. Cheeseman's most valuable, and exact *Manual of the New Zealand Flora*, a model of what such a work should be. The concise histological notes form an excellent novelty in systematic literature.

Most species are figured in Kirk's fine, illustrated work, *The Forest Flora of New Zealand*, and there are many good photographic illustrations in Laing and Blackwell's *Plants of New Zealand*, a recently published, little work on popular lines. *L. S. Gibbs.*

CULTURAL MEMORANDA.

CYCLAMEN.

At the present time we have some well-grown plants in full bloom, which are a source of pleasure and admiration to all who see them. Perhaps a few details as to our method of culture may be of interest to some readers of the *Gardeners' Chronicle*.

We commence in October by dibbling the seeds into seed-pans, in a compost of loam and leaf-mould in equal parts, with a liberal addition of silver sand; the compost is first passed through a sieve. The seedlings remain in the seed-pans until they have made four or five leaves, when they are carefully potted off singly into small 60-size pots, the compost being similar to that already described but in a little coarser condition, and some brick or pot sherds, broken very finely, are added to it. The plants are then returned to the same temperature (about 60°) in which the seeds germinated.

By careful attention to watering, &c., the plants soon grow away. The next shift is into 5-inch pots. Our compost for this potting consists of two parts fibrous loam to one part leaf-mould, with small brick rubble, sand, and a little dried cow dung. In potting, we keep the top of the corm on a level with the top of the soil. I am aware that many growers keep the corms a little above the soil, but in this case they become unnaturally dry; if they are just buried, the soil around them keeps them in a better condition. Great care is necessary when watering, to prevent water getting into the crowns of the plants.

When the weather becomes warm, about the end of May, our plants are placed in a cold frame on the north side of a wall; in this position it is rarely necessary to shade them. The frames are kept close for a few days, after which air is gradually admitted, until the lights are removed entirely every night throughout the summer, unless there is rain. The night dews greatly benefit the plants, which are also lightly syringed on bright afternoons. In September the plants are placed on a shelf close to the glass in a greenhouse. As soon as the flower-buds appear, they are given a little weak liquid manure, alternated with soot-water, and, as the flowers develop, an occasional sprinkling of some approved

fertiliser is applied. If no artificial food is given the roots, the buds do not develop so freely. Our plants commence to flower a little before Christmas, and continue thence onward until May, about which time less water is given them, but we do not dry the plants off entirely. Some time in July they are partially shaken out, and repotted into 7-inch pots and grown on as above. These older plants make good specimens, and produce large quantities of flowers. At the present time some of our plants measure 20 inches across, and are carrying over 50 blooms each, whilst there are numerous buds yet to open. In past years some of the plants have borne upwards of 150 fully-expanded blooms at one time. The temperature of the house in which they flower often falls as low as 40°.

The plants are not retained after they are three years old. *Wilmot H. Yates, Rotherfield Park Gardens.*

VEGETABLES.

SPRING CABBAGES.

THE heavy rains, alternating with frost, have had a bad effect on the Cabbage crop, and it is to be feared that the season for cutting will be somewhat belated. Early spring Cabbages are always appreciated, and the earlier they are available for use the greater is their value. A little forethought will do much in securing early results. It is useless to merely dibble the plants in during October and leave the rest to chance; in all probability they will be twisted about by winds during the whole winter, and have an undue amount of bare stem exposed to frost. We plant in drills, and when the roots have taken hold of the ground the drills are filled in, bringing the soil well up to the lower leaves, so that the stems are entirely buried. This keeps the plants protected and steady during the worst of winters. The plants may be further assisted in early March by a dressing of soot, which should be lightly forked into the surface. Where planting and ridging-up is not practised, the plants will be loose in the soil, and present a leggy appearance. In that case some fine, dry ashes should be spread about the plants, and the ground made firm around them. This should be followed by making ridges of soil along the rows as a protection against the rough weather we may expect in March. *P.*

REMARKABLE ABNORMALITY IN CROCUS.

IN the specimens of Crocus sent to us for examination, growth has proceeded along remarkably abnormal lines; instead of serving for the production of well-developed leaves and flower, most of the food substances stored in the last year's corm have been used to form massive, fleshy, whitish-scale leaves (Fig. 59, O.S.L.). These fleshy-scale leaves, two or three in number, correspond with the thin, papery, brown scales on the outside of an ordinary Crocus corm. As a consequence of this overgrowth of the scale leaves, the ordinary foliage leaves enclosed within them have remained small, and the flower, though it exists, is in a very rudimentary condition.

There can be no doubt that, owing to some cause or other, the flow of elaborated sap stored in the old corm has been diverted from its normal course. Instead of passing, as is usually the case, from the old corm to the foliage leaves and flower, and thus contributing to the development of these structures, but little has passed to them and much to the scale leaves, which have, in consequence, grown almost out of recognition.

That absence of light was not the original cause of this result is clear from the facts that, in the first place, Crocuses planted under ground develop their leaves in a normal way, and, in the second place, the foliage leaves of the abnormal specimen, though they were enclosed com-

pletely by the fleshy white scale-leaves, are of a good green colour.

Doubtless the fact that the light reaching them through the thick, fleshy, abnormal scale-leaves could have been but feeble co-operated to maintain the leaves in a rudimentary state, for, without light, these leaves have been unable to make any food-substance for themselves.

It is probable that the corms were allowed to start into growth in a very warm place, or that they were put into warm water, with the object of forcing them by the "warm bath" method. The effect of warm water on Crocus corms which

PROTECTING PEACH FLOWERS FROM FROST.

By the exercise of a little timely forethought in the protection from frost of the blossoms of Peach and Nectarine trees growing against walls or fences out-of-doors and having a south-west, or even east, aspect, a good set of fruit may often be obtained without incurring much expense. One or more wide boards, according to the number of trees to be protected, fixed securely on the top of the coping of the wall immediately over

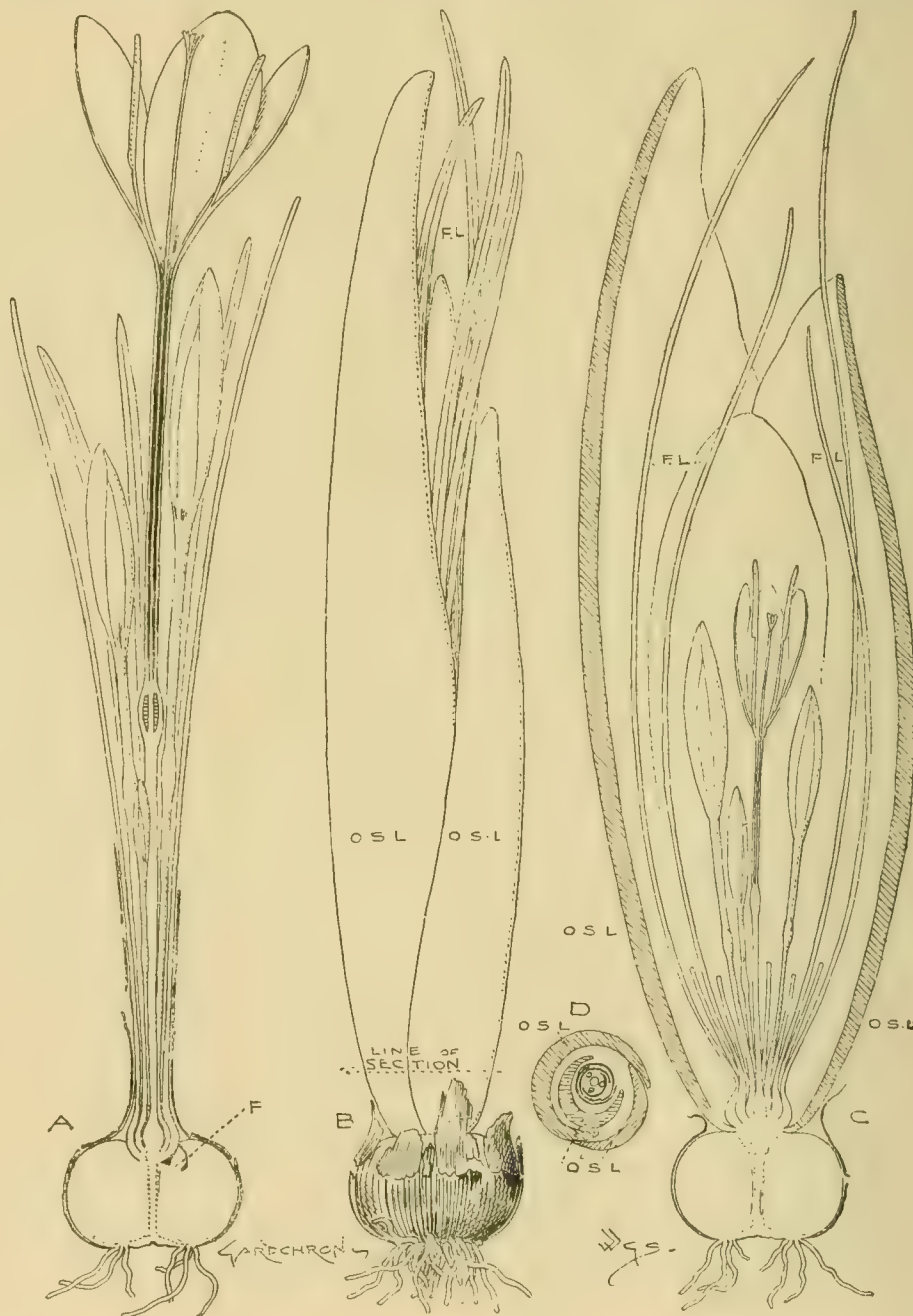


FIG. 59.—ABNORMAL CROCUS.

A, normal Crocus for comparison; B and C, abnormal Crocuses; D, cross-section through B; O.S.L., outer scale leaves; F.L., foliage leaves; F, lateral bud.

have passed out of the resting condition is, as a matter of fact, to produce such an abnormal development of the scale-leaves as that shown in the specimens under examination. The accompanying diagrams, illustrating the structure of a normal Crocus and of the abnormal plant, will serve to demonstrate the points of difference and to show that the abnormality is the result of hypertrophy (over-growth) of certain parts (outer scale-leaves) and the atrophy (reduced growth) of the other parts—foliage leaves and flower.

the trees, will do much to protect the expanded blossoms from injury, as it is the downward direction of frost that does the mischief. Double or treble widths of fish nets, such as are used to protect ripe Strawberries, &c., from the attacks of birds, if hung in front of the trees from the wall coping and secured to the ground by crooked pegs about 12 inches or 15 inches out from the wall, so as to prevent the wind from blowing it against the blossoms, may be used with good effect where nothing better is available.

Sprays of Spruce Laurel or English Yew, 15 inches to 18 inches in length, with the ends securely fixed between two narrow strips of board, the latter being then fixed firmly on the top of the wall or fence, with the evergreens projecting therefrom 15 inches or 18 inches over the trees, will afford a good protection to the blossoms from frosts.

Where long walls, from 2 feet to 12 feet high, are furnished with Peach and Nectarine trees, the best temporary protecting material I know is a kind of perforated cotton canvas, obtainable in the horticultural trade as No. 5 hexagon shading. Two widths of this, consisting of 54 inches each, joined together, will afford ample protection to trees in flower trained against walls from 9 feet to 12 feet high. This should be fixed at the top and bottom with broad tape, stretching lengths of the same crosswise at intervals of about 10 feet the entire length. On to these fasten nine rings through which and the pulleys the sashline must be passed for the purpose of raising and lowering the covering when necessary. A series of light poles, varying from 3 inches to 4 inches in diameter at the bottom to 2 inches at the top are necessary. They should have a slice 1 inch thick and 3 inches deep cut off one side for holding screw strips of board of the same dimensions, on which to secure the cloth and screw pulleys and hooks for raising and looping up the blinds by means of short lengths of stout string provided for the purpose. The poles should be let into the ground a few inches deep at about 5 feet apart and 18 inches out from the wall, the tops (round side) being secured in Y-shaped holdfasts driven into the wall immediately below the coping, and against the face of which the several poles rest, and screwed thereon are shouldered strops of iron 1 inch wide and $\frac{1}{4}$ inch thick, rounded on one side, with a bolt and nut on top. On these strops, boards, about 14 inches wide and provided with $\frac{1}{2}$ -inch circular holes, are fastened by means of oblong washers and nuts, the former being placed between the latter and the wood. Hooks are driven into each pole 9 feet from the top, to secure the blinds when let down. The poles, boards, &c., will last for several years if stored in a dry place when not in use.

H. W. Ward.

THE ALPINE GARDEN.

VIOLA GRACILIS.

No doubt many other people have already paid public homage to this plant, but I must also have my part in its triumph song. Every season one finds oneself saying of some new beauty that it is the "most important introduction of the last ten years." Otherwise, I should certainly say it now of *Viola gracilis*, for I do not know of many plants that have the really astounding beauty of this precious Greek *Viola*. To those who are yet strangers to its charms, I may describe it as repeating, in proper circumstances, the whole habit of *Viola cornuta*. But poor *cornuta* hides her head when *gracilis* comes into the garden; the new arrival has flowers of the most pungent imperial blue-violet that I know of (matching that of *Primula capitata*), and, in texture, of the richest velvety bloom and finish. As if this were not enough, they have a curious little exquisite twist to the three lower petals, which gives them a rakish coquetry unknown to the others of their race. As if this were still not enough, they have a soft and delicious fragrance, and are produced in untellable profusion from well-established tufts. To such tufts I have not yet myself attained; but in the rock-garden at Underley in June last year they were a glory and an amazement to behold. Easy of multiplication and treatment as *cornuta*, *gracilis* is unquestionably hardy, and only asks for sunshine and a light, rich soil to develop into a wide little bush of foliage, over which, on their long stems,

hover a multitude of those gorgeous violet blossoms, sombre yet glowing in their purple-velvet richness.

Indeed, there is very much more yet to be known of the rare *Violas*; *aetolica* and *adunca* always attract me by their names; and who, as yet, possesses the true *arborescens*? There are many horticultural treasures yet to be discovered in the race, I am sure of it. Ere long I hope I may have news to give of *V. atlantica* (false to name, but, I believe, beautiful) of that glorious Japanese form of *V. pinnata*, and of the rare, exquisite (and difficult), little *nummulariaefolia* from the crevices of the Maritime Alps.

VIOLA HETEROPHYLLA.

THIS curious Alpine *Violet* is far too little known, although perfectly easy and perennial. It is not uncommon in the Alps, but I never saw it myself until a certain lamentable day on the Cima Tombea, of which I may sometime have an ampler tale to tell. There it was growing on stony patches of the highest ridge in full sun, thus indicating that poor-soil culture, or the Moraine, should suit it best in England. The plant has an odd annual look, although I believe it to be quite perennial. But, from the ground it sends up one erect stem, about 6 inches high, thickly clothed with glabrous, light-green leaves, which are cleft and claw-shaped like a small *Delphinium*'s; the flowers appear on long stalks from the leaf-axils, and are of a very strange and conspicuous red-purple, not often found among its kindred. They are wide, flat and well-balanced in shape, and in size just a degree smaller, perhaps, than those of typical *V. lutea*. The other Alpine *Pansies*, in fact, are larger in bloom than *heterophylla*—which, for the rest, is absolutely distinct from them in its habit and beauties. Last, but not least, it beats the Alpine *Pansies* in possessing a strong and intensely sweet fragrance. Fortunately, though I was fiercely miserable and cross by the time I came upon it, the *Violet*'s charm was strong enough to make me collect it. And I believe also that it springs readily from seed; for M. Correvon tells me that collected plants grown at La Linnaea have now established the species firmly in the neighbourhood. *Reginald Farrer*.

PLANT NOTE.

CLERODENDRON FALLAX.

SEEDS of this useful decorative plant should be sown now in a temperature of 70°, and the seed-pans or pots plunged in a hot-bed. They will soon germinate, and before long the seedlings will be ready for transplanting into 2-inch pots filled with a light soil consisting of equal parts of loam and peat, with a good sprinkling of sand. If they are attended to properly and sprayed two or three times each day they will soon be ready for shifting into large 60's. At the second potting add a little cow dung, which has been passed through a fine sieve, to the staple. See that the plants are finally shifted into their flowering-pots (6-inch and 7-inch) before they become root-bound. At the final potting the soil should be in a more lumpy condition and consist of two parts good fibrous loam, one part peat, some cow dung, a little lime rubble and sand, with a light sprinkling of fine bonemeal. Pot firmly and place the plants on a shelf in the stove. Afford water carefully until the plants are well rooted, when they may be given plenty of moisture, including weak liquid manure. About once each week sprinkle a little Clay's fertiliser on the surface of the soil. Keep the foliage well syringed and afford a thin shading from the sun's rays. When the flowers are about half expanded the plants should be placed in a house having an intermediate temperature. When in bloom they will be found most useful for the decoration of the dwelling-house; they are most effective when about 20 plants are arranged in a group. Plants raised from seed each year make better specimens and produce larger flower-spikes than those raised from cuttings or old plants which have been cut back. *F. J. Howard, Malshanger*.

The Week's Work.

THE KITCHEN GARDEN.

By JOHN DESS, Kitchen Garden Foreman, Royal Gardens, Windsor.

The season.—The wet weather has delayed out-door operations, and this fact will materially increase the pressure of work as soon as drier conditions occur. This knowledge should cause the gardener to push forward all preparatory work, such, for instance, as the provision of properly-sharpened Pea sticks, the examination of roots in the store-room for the purpose of removing any that show the slightest decay, and the setting out of seed Potatoes singly in well-ventilated sheds where frost can be excluded by simply shutting the ventilators, and where the seed-tubers, whilst keeping firm, will slowly commence to make sturdy shoots.

Planting Potatoes.—In some gardens it is desirable to have new Potatoes from the open ground as early in the season as possible, therefore, a small plantation of tubers should be made as soon after the present date as the ground is in a fit condition. If they can be planted under the protection of a south wall, where it is customary to afford protection to the Peach trees, and where some old potting soil can be used for potting, the yield of new tubers will be advanced by 10 days, or even a fortnight. In damp or low-lying situations, where frost is frequent, some covering material should be kept in readiness so that it may be applied when necessary.

Parsley.—Parsley seed may now be sown to produce a supply in early summer. The plants raised in July last for winter use will run to seed early in the forthcoming season. These old plants would only yield Parsley of inferior quality, and prove a very impoverishing crop if allowed to remain too long on the border. Summer Parsley requires a good, rich soil, and a somewhat shady situation, such, for instance, as an eastern aspect. The seed, which takes a long time to germinate, should be sown in drills 18 inches apart, and covered to the depth of 1 inch with finely-sifted soil. As soon as any plants are large enough to be handled, they should be thinned to 6 inches apart in the row. It will be necessary to make another sowing early in July, on a south or west border, for winter supply. When the crop has reached full size, early in September, it should be cut down to the ground. This will cause the plants to make fresh growth capable of standing through the winter. An occasional dusting of soot causes an increase of vigour in the plants and darker green colour in the foliage.

Tomatoes.—Seeds should be sown for raising plants for out-door cultivation. A gentle bottom heat will be necessary until the seedlings are well above the ground, in which stage they should be placed as near the glass as possible. Pot them singly into 3-inch pots as soon as they can be handled, and when they have filled these pots with roots, pot them again into 6-inch pots, so that they will be good, strong plants showing flower when needed to plant out in the last week of May. "Best of All" is a capital variety for out-door culture.

Forcing.—Place roots of Rhubarb, Seakale, and Asparagus in the forcing pits as may be necessary to maintain a continuous supply of these crops. Very little heat is necessary at this season, but just sufficient must be given to cause moderately quick growth. The remaining roots of Seakale intended for forcing in pits should be lifted without delay and stored in a dark, cool place, or the colour of the Kale when forced will be unsatisfactory in consequence of exposure of the crowns to the light after growth has commenced. Any roots it is intended to force in the open should have a good covering of ashes placed over them to ensure that the heads will become well blanched. Seakale forced in this manner is of much better quality than that forced in strong heat, therefore, where a piece of ground can be set apart for the purpose, this method of forcing is best. The fermenting material necessary for the provision of heat should be prepared beforehand, and placed round the Seakale pots in sufficient quantity to ensure complete darkness and a steady growth. Rhubarb may also be covered up and planted in the same manner from this date forward by simply placing pots over the crowns and covering them with a liberal quantity of fermenting material.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Weetwood, Yorkshire.

Hippeastrum.—The main batch of bulbs should now be started into growth in a warm greenhouse. Remove the old soil from the roots, preserving from damage any of the latter that are healthy, and examine for insect pests. Pot them firmly, using receptacles larger or smaller according to the strength of the bulb. Afford water sparingly until the flower-buds appear. The development of the leaves should, if possible, be retarded until the flowering season.

Alocasia.—These fine foliage plants are only suitable for stove cultivation, as they require abundant heat and moisture. They may be propagated easily by division of the crowns, which spring up from the base of the older plants, or the underground stem, or rhizome,

inserted or the old stems may be cut into lengths, preserving one or two eyes on each piece. Each cutting should be placed singly in a 3-inch pot filled with a compost of sand or leaf-mould or cocoanut fibre; plunge the pots in a hotbed and thoroughly moisten the soil and plunging material. If the atmosphere is kept close for a few weeks and shade employed when necessary, growth will soon take place, and the plants may be transferred into larger-sized pots. Useful plants may thus be secured by autumn. In the intervening time they should not be allowed to become root-bound, at any rate until their final potting, after which time frequent applications of chemical manure, alternated with weak liquid manure, will be necessary. Acalyphas are particularly subjected to attacks of red spider, and they must be therefore occasionally sponged with an insecticide.

used in a lumpy condition, some dried and pulverised cow-manure and silver sand. The plants continue to flower well for some years after repotting, provided that liberal quantities of liquid manure water are applied during the season of growth. Seeing that large specimens are not retubbed oftener than once in four or five years, it is useful to mix a considerable quantity of $\frac{1}{2}$ -inch or $\frac{1}{4}$ -inch bones with the potting compost, as these continue to afford nutriment for a long period. The flowers shown in fig. 60 are of the variety *albidus*, but those of the type are deep blue.

The conservatory.—The Freesias now being in bloom, may be made to form a charming display if displayed with coloured Tulips and Cyclamen. Clematis *indivisa lobata* is just opening into flower. Careful attention must soon be given to providing shade from hot sunshine. Be careful to prevent the hot-water pipes getting overheated, and, when such heat may be dispensed with during the daytime, let this be done.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

Perennial Asters or Michaelmas Daisies.—In order to have a collection of Michaelmas Daisies at its very best, a border should be set apart entirely for their cultivation, and the most rigid selection should be practised in order that the collection shall consist exclusively of choice varieties. The plants should be lifted annually, for the purpose of division and replanting on deeply-dug ground which has been given a liberal dressing of decomposed manure. A common mistake in replanting is that of leaving the plants too large; portions that are capable of producing five or six strong growths are quite large enough. They should not be planted closer than 3 feet 6 inches to 4 feet from plant to plant, and the same distance should separate the rows. The best effects can only be obtained in a border of considerable width. A good situation is sometimes provided by a front part of a shrubbery in an open position, but one sheltered from rough winds. The plants will succeed in almost any aspect, but I prefer for them a south or south-west aspect. Many of the taller-growing varieties of the *A. Nova Belgiae* and *A. Nova Angliæ* sections should be placed well back amongst the shrubs, and for the prominent part of the border I would select principally varieties of *A. ericoides* and *A. cordifolius*, as these species possess the most graceful habit, and they produce a great profusion of flowers. There are many excellent varieties affording distinct shades in colour, and this question of colour must be given serious consideration at the time of planting, as well as the heights the varieties usually attain. Any time when the weather is suitable, the replanting of the collection may be carried out. The following varieties I particularly recommend to cultivators: Mrs. F. W. Raynor, an effective and distinct variety with crimson flowers; Climax, the strongest grower of all, with large, clear-blue flowers, fully 2 inches across, a great favourite; Lustre, a new semi-double flower, of a rose colour, unique, and one sure to become popular. Others might include Hon. Edith Gibbs, Bianca, a white form of the older variety Sweet Lavender, Perfection Maidenhood, Enchantress, White Diana, cordifolius elegans, Ophir and Golden Spray.

Propagation.—Any varieties represented only by a small number of plants, if divided now, and potted into small pots, will make good plants for placing out at a later date. They may be put into a cold frame and kept fairly close for a time. Any seed that was saved last season, should now be sown in boxes or pots, containing fine soil, placing the receptacles in a gentle heat. Any surplus stock, after planting, especially varieties of the small-flowered section, may be successfully grown as pot plants, and they will be useful for the conservatory and cool greenhouse. Six or 7-inch pots are the most convenient size and a suitable compost is one consisting of loam, leaf-mould, and coarse sand, with a sprinkling of bonemeal. The plants must never be coddled or placed where earth worms will get into the soil.

Aster Amellus.—Plants of this type are too small for arranging with the other sections, and are best given a position to themselves. They are quite indispensable for affording flowers for cutting, and for this reason, they are grown by



[Photograph by Charles Jones.]

FIG. 60.—AGAPANTHUS UMBELLATUS ALBIDUS.

may be cut into pieces, preserving one or two of the eyes on each piece. These pieces must be laid upon a light compost in a brisk bottom heat, and kept in a moist condition, when they will soon produce roots and be ready for potting. The crowns should be potted in a compost of fibrous peat (not broken finely), and Sphagnum-moss, with a few lumps of charcoal or broken crocks. The plants require good drainage, and should have their crowns kept well above the rim of the pot. The leaves must be tied to a stake in order to keep them secure in their position. The larger plants, which are to be retained as specimens, will need to be potted into larger pots later in the season.

Acalypha.—Cuttings of these plants may be

Agapanthus umbellatus and its variety albidus.—Any plants of Agapanthus in need of repotting may still be given attention, but it is too late to attempt division of the crowns. Where very large specimens are grown for the conservatory, or for placing in prominent situations on the terrace in summer, square green tubs are to be preferred to pots, for the reason that the thick succulent roots of these plants are apt to cause the pot to break after they have become full. This does not occur in properly-made Teak-wood boxes, and these receptacles have a good appearance. The Agapanthus is a most thirsty and gross-feeding plant, therefore the receptacles should be provided with good drainage, and the potting compost should consist of fibrous loam.

the acre by commercial gardeners. Great improvement has been made in this section, and a few of the best varieties are Fred Gill, Lilacea, Rosy Morn, H. J. Cutbush and Aldenham. These exhibit distinct breaks from the old forms, and are worth a position in the mixed borders. Many of the true species are well worth growing; one of the earliest and best of these is *A. Thomsonii*, of dwarf habit and a native of the Himalaya. It is effective on rock-work or undulating ground. Other species of merit are *A. acris*, *A. diffusus horizontalis*, *A. Fendleri*, *A. grandiflorus* (an excellent species for pot work), *A. Tradescantii*, *A. turbinellus*, and the white form known as *albus*. Many of the stronger growers of both sections are especially suited for the wild garden or other out-of-the-way places.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Figs.—In favourable localities Figs can be successfully grown out-of-doors, either as standard trees, in a sheltered position, or, better still, against walls having a south or south-west aspect. Figs flourish in most soils which contain lime; but the rooting medium must be made very firm, or the trees produce excessively strong shoots, which seldom ripen perfectly, and hence are unfruitful. Figs require plenty of moisture, and, consequently, good drainage. Where it is possible, the roots should be confined in borders of a certain size, in order to prevent the roots extending beyond these limits, and possibly into soil that has been liberally manured for other crops. A fresh border should not be made of a rich compost, for ordinary pasture-loam which has been stacked for a year requires no further addition beyond a liberal quantity of wood-ashes and some finely-broken mortar rubble. In gardens where Fig trees have been covered with material as a protection against frosts, this may now be gradually removed, at any rate, in the warmer parts of the country; but in districts where frost is usually prevalent at a very late season, the protection may be left intact for a few weeks longer. Any pruning that is necessary should now be undertaken, but it is possible to keep the trees in a good condition by disbudding and pinching in the growing season, and the removal or thinning-out of the less valuable wood in winter. After pruning, the trees should be thoroughly washed with some approved insecticide, after which the pruning may be done, placing the shoots thinly and at equal distances over the wall space. If sharp frosts occur unexpectedly after the training is completed, the trees may be protected by means of a few Archangel mats securely fastened over them. Trees having their roots in restricted borders may be given a top-dressing of loam, with a good sprinkling of wood-ashes and bonemeal well mixed together. This top-dressing should be made quite firm by treading with the feet. The pruning and thinning of established standard trees is best done immediately after the crop is gathered. The cuts will then heal over quickly, and the thinning-out of the shoots will the better expose those which are left to the influence of sun and air. Root-pruning is often indispensable in the cultivation of Figs.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Pot vines.—Plants which were started in November are now in flower, therefore raise the temperature of the house to 60° or 65° at night, allowing a rise by day to 75° or even 80° in sunshine. During the time the vines are in flower the atmosphere must be kept somewhat drier, but this must not be pushed to an extreme. At this early season of the year great care is necessary to get the berries to set, and every part of the inflorescence will need attention in this respect. The pollen should be distributed every day at about noon by means of a clean, soft, hare's tail. In carrying out this operation, commence at the bottom of the bunch and work upwards, thus will be caught on the brush any pollen which falls owing to the slight shaking. The top of the bunch nearest the stem is generally found at the end of the season to be loosest, owing to bad setting; therefore, let particular attention be given to this part. It is best to commence pollination by treating such free-setting varieties as Foster's Seedling and Frontignan. In this way the tail

becomes well charged with pollen before it is used on the less free-setting varieties. In the case of Canon Hall Muscat and Chasselas Napoleon, the stigma is frequently so viscid that it becomes necessary to remove this fluid by spraying with clean, soft water, or absorb it with a clean, dry cloth, or a piece of blotting paper, before the pollen is applied. If spraying is done, the inflorescence must be allowed to become thoroughly dry again before pollination is attempted. After removing this liquid, take a sheet of clean note-paper, carefully collect some pollen from some free-setting varieties, and apply this to the flowers. Take particular care to abstract from the paper any objects which drop from the bunch with the pollen, and which would otherwise stick to the tail or brush, making it hard or prickly. The unset flowers and the embryo berries are extremely tender at this stage, and the least mark made will develop into a big scratch or disfigurement when the fruit is fully matured. The action of the brush upon the flowers should be by dabbing it, never by stroking it up and down. This latter method is very frequently practised by beginners, and is the primary cause of disfigured berries later in the season.

Successional vines.—Vines which are now showing the inflorescence, may have the shoots pinched at the second or third leaf beyond the bunch, one or the other according to the space available. Tie down any shoots that are touching the glass, but leave others until the flowers have set, by which time the wood will be fairly tough, and, therefore, less liable to snap. Allow only one bunch to remain on each lateral shoot, and beyond this refrain from thinning the bunches until after the flowers have set. This will not only give a greater choice of bunches but more pollen will be available in the house at the time of setting the flowers. Any vines which have a tendency to break into growth unevenly should have their rods placed in a horizontal position until the buds have started, when they can be again trained into their permanent, upright positions. Syringe them daily with tepid water, but take means to prevent excessive moisture in the house, especially on cold nights.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Shading.—It has already been found necessary to shade the cool houses, also to put shading over Vandas, Aerides, Phalenopsis, Angreæums, Cypripediums, Zygopetalums, which include Bollea, Pescatorea, Huntleya, Warscewiczella, &c., also plants which have recently been repotted, and others with tender leaves that were likely to be disfigured by the sun's rays. After a long season of comparatively sunless weather, such as we have experienced in this district, Orchid growers cannot be too careful in this respect; therefore it is advisable that the blinds and shadings should be at once fixed in their places, ready for use whenever they may be required. No system of shading I know has answered so satisfactorily as the old one of roller blinds, which, by means of supports fixed on the roof, are raised 5 inches or 6 inches above the glass. By this plan, abundance of air passes between the blinds and the glass, the benefit of which cannot be over-estimated; especially is this applicable to the cooler houses, where a suitable temperature may thus be maintained easily during hot weather. Care should be taken to select such material as will suit the requirements of the several divisions. Where canvas shading is preferred, that selected for the East Indian house and cool house should be of a closer texture than that used for the Cattleya house, while only a very thin shading is necessary on the Mexican house, and unless the house has a direct southern aspect, will be needed only for a few hours during the middle of the hottest day in summer, as its occupants, which include Vanda teres, Lælia anceps, L. albida, L. autumnalis, Odontoglossum citrosimum, many of the dwarf, round-bulbed Epidendrums, &c., delight in an abundance of sun-heat and light at all times. At Burford we use the lath blinds on all the houses, with the exception of those containing Phalenopsis, Mexican Lælias, and Masdevallias. Since these lath roller blinds admit plenty of light to the plants, there is no necessity to keep pulling them up and down at every trifling change in the weather, as is necessary where canvas blinds are used. Therefore, when the weather is changeable, and scorching

of the foliage is feared, keep the blinds down. The blinds on the East Indian, Dendrobium, Cattleya, and Mexican houses may be made to roll down almost touching the glass, as a maximum of sun-heat without scorching is what is required in each division. In addition to these blinds, when the sun becomes more powerful, we use a thin, permanent wash-shading on the roof-glass outside, of which there are many excellent preparations advertised. Those amateurs who desire to make up a preparation for themselves can do so with whitening and new milk, formed into a thin cream and stippled on the outside of the glass. Another very good mixture consists of ordinary whitening mixed to a paste with cold water; to each gallon of paste add about one pint of Linseed oil, thin with cold water if required, but if much water is added, use a little extra oil. When putting this kind of shading on, it is necessary to wipe the glass thoroughly clean and dry, and to paint it on with the sun shining full on the glass. For the Odontoglossums and other cool houses, I prefer the whitening and new milk mixture, as it keeps the glass cooler than where oil is used. When once this stippling is properly put on the glass, the grower need have but little worry about shading the plants. There is one disadvantage to this kind of shading, and that is, no matter what the weather is like, the shading is present, but it is not put on sufficiently thick to seriously obstruct the rays of light or warmth of the sun. If the side lights or ends of the houses be in very sunny positions, they may be similarly treated.

THE APIARY.

By CHLORIS.

The care of the bees.—Bees often go through January easily, but disasters may occur in February and March unless the apiarist is vigilant. They need ample food and protection from wet and cold, particularly any stocks that were weak in the autumn. If the hives have double walls this protection can be easily provided by filling the space around the inner hive with saw or cork dust. The roofs need constant attention during wet weather, and when the quilts are being renewed, see whether there is plenty of food, but an examination is not permissible. Where food is necessary, it must not be liquid, that is stimulating food. A cake of candy or a comb of sealed honey slipped under the quilt is best. If a colony occupies a soaked hive, caused through leakage, remove bees to a dry hive at once, for this dampness will probably cause a weakly colony to suffer from dysentery. The stock thus rehoused must be fed with candy or good sealed-combed honey. Keep the entrances free from dead bees, for with such changeable weather as we are experiencing, the bees on the outside of the cluster during a sudden cold snap are chilled and fall between the combs to the floorboards and die.

Feeding.—If no sealed-comb honey is available then candy may be made of the best crushed loaf sugar kneaded with a little warm extracted honey until it resembles putty. This may be placed in an empty section under the quilt. Where honey is not obtainable, then the candy must be made as follows:—Place in a preserving or enamelled pan sugar in proportion of 5 lbs. of cane sugar to one quart of boiling water. Stir well over a clear fire until all the sugar is dissolved. As soon as the liquid boils draw the receptacle aside and remove the scum. Then return the saucepan to the fire and let it boil as fast as it will for 20 minutes, but do not stir. If it be boiled sufficiently, the bent finger first dipped into a bowl of cold water may be dipped into the boiling syrup then again into water, and that on the finger will roll into a ball. The boiling should continue until you can get a ball by the method named. When sufficiently boiled, pour the liquid into suitable receptacles, such as soup plates, and allow it to remain quite still until the finger can be kept in without scalding, then stir well until it sets.

Rats and bees.—Those who have bees in rat-infested districts will do well to look round the apiary to find if any damage has been done. Early this month I examined an apiary and found that the rats had eaten through the floor of a hive and cleared the whole of the contents, and had damaged several other hives. Where these destructive rodents are found, it will be well to lay poison in the holes.

EDITORIAL NOTICE.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Perennials and Herbaceous Plants, Liliaceae and Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

TUESDAY AND WEDNESDAY—

Clearance Sale of Nursery Stock, at the Horsell Nurseries, Woking, by order of Messrs. J. Cobbett & Sons, by Protheroe & Morris, at 12.

WEDNESDAY—

Hardy Border and Herbaceous Plants, Lilies, Gladiolus, and other Bulbs and Roots, at 12; Roses and Fruit Trees at 1.30; Palms, Azaleas, Ferns, &c., at 5, at Protheroe & Morris' rooms.

FRIDAY—

Importations of Cattleya labiata, Autumnalis, Dendrobium, and Cattleya Mossiae, also Established Orchids, at Protheroe & Morris' rooms, at 12.45.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—40.5°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 23 (6 P.M.): Max. 49°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 24 (10 A.M.): Bar. 29.5; Temp. 48°; Weather—Raining.

PROVINCES.—Wednesday, February 23: Max. 43° Sligo; Min. 36° Yorkshire.

Each day brings fresh news of the disastrous effects of the floods which have inundated not Paris only, but also wide stretches of country along the courses of the Seine and its tributaries. All the world testifies to the splendid manner in which the French have organised themselves to combat the disaster; but, though they have, by their prompt energy, saved the capital, they have not been able to stem the tide of devastation and ruin which has swept over large tracts of their country. The relief fund inaugurated by the Lord Mayor of London has resulted in the subscription of upwards of £60,000, a sum which represents probably about one-hundredth of the damage done during the last few weeks.

Not less admirable than the vigour and calmness of the French people in the face of disaster of unparalleled magnitude has been the relief-organisation by the numerous societies detailed to bring succour to special classes of sufferers. Among those societies is the French National Society of Horticulture, which now issues an appeal for help on behalf of the market gardeners and other horticulturists who have suffered, and in many cases have been ruined, by the flood.

We hope that British horticulturists will respond to this appeal. They will require no graphic description to picture the destruction to crops and material which must result when a river overspreads its banks and invades cultivated land. To the small cultivator in particular such a misfortune is overwhelming, and for him a measure of assistance may make

all the difference between temporary and irreparable ruin.

Subscriptions should be addressed to the Treasurer, La Société Nationale d'Horticulture de France, 84, Rue de Grenelle, Paris. If any of our readers prefer to send subscriptions to us, we shall be pleased to acknowledge them in our columns and to transmit them to the Treasurer of the French National Society of Horticulture.

Although perhaps more remains to be done than has yet been accomplished in the botanical exploration of New Guinea, sufficient is known of the flora to enable us to form a general idea of its character and composition.

Blume, Miquel and other Dutch botanists described numerous genera and species of New Guinea plants, and a manuscript list in the Kew Library, compiled in 1898, comprises about 3,000 species of flowering plants and Ferns. This list includes Beccari's important contributions to our knowledge of the flora in Malesia; but since that appeared Schumann and Lauterbach's *Die Flora der Deutschen Schutzgebiete in der Südsee* has been published. Including the *Nachträge* (1905), this work contains descriptions and figures of a large number of New Guinea plants. The first part of an important contribution to the flora of Dutch New Guinea* is now to hand. It forms the first part of the eighth volume of the results of Dr. H. A. Lorentz's expedition, undertaken in 1907. It is issued under a Dutch general title and a partial French title, and each contributor, apart from the Latin descriptions, writes in his own language, except that the Dutch write in German! The matter is not arranged systematically, the part being made up apparently from whatever was first ready, beginning with the Orchidaceae by Mr. J. J. Smith, a Dutch gentleman with an English name. As is well known, Orchids are very numerous in New Guinea, and this enumeration comprises all hitherto known to occur in Dutch New Guinea, of which there are 242 species belonging to 59 genera. Of the species 88 are described as new, but the collections contain no new genus, which, as the author observes, is rather remarkable. About 150 pages and 46 plates are devoted to the description and illustration of the Orchids. The illustrations are almost entirely limited to analyses of the flowers, and they are uncoloured; but they have the appearance of being carefully executed, though the figures are necessarily more or less diagrammatic in structure. Altogether analyses of 156 species of Orchids are given. The genera most numerous are: Dendrobium, 60 species; Bulbophyllum, 29 species; followed by Microstylis, Cerastostylis, Phreatia, Agrostophyllum, Liparis, &c. Generally speaking, the flowers of the New Guinea Orchids are small for their genera, especially of the genera Dendrobium and Bulbophyllum. The other families dealt with in this volume are: Filices (Christ); Triuridaceae and Polygalaceae (Went); Sapindaceae, Elaeocarpaceae, Gentianaceae, Taxaceae, and Ericaceae (Koorders); Burmanniaceae, Corsiaceae, and Stemonaceae

*Uitkomsten der Nederlandsche Nieuw Guinea Expeditie in 1907 onder leiding van Mr. H. A. Lorentz. Botanique, Livraison 1. Quarto, pp. 220 t. 51. (Leiden: E. J. Brill, 1909.)

(J. J. Smith); Ebenaceae and Loganiaceae (Hiern); and Palmaceae (Beccari). Palms are less numerous than might have been expected—only 11 species, belonging to eight genera. The Taxaceae are limited to an imperfectly known species of Dacrydium. Of Ferns, 73 species are enumerated, and of these 17 are described as new. The other families offer no remarkable novelties. Briefly, it may be stated, the flora of New Guinea is essentially Malayan, with a small Australian element. The characteristic temperate types, so far as known, are much the same as those of the mountains of Borneo.

OUR SUPPLEMENTARY ILLUSTRATION.—

Gentiana scabra is a handsome, late-flowering species. It occurs wild both in China and Japan, and belongs to the same section of the genus as the beautiful British species G. Pneumonanthe. G. scabra was first introduced into cultivation from Northern China by Fortune in 1849, and flowered in the nursery of Messrs. Standish & Noble, of Bagshot, in 1853. From this plant drawings were prepared for the figure in the *Botanical Magazine*, t. 4776, where it appears under the name of G. Fortunei. Later, however, it was found to be merely G. scabra. More recently the plant has been imported from Japanese nurseries under the name of G. Buergeri, which is the Japanese form of G. scabra. Although varying slightly in minor points such as colour of the flowers and size of leaves, there are no essential differences between the forms of either country. G. scabra is a hardy perennial, growing from 1 foot to 2 feet high, with leafy stems, bearing in the upper axils of the leaves large flowers of a bright purple-blue colour. The throat of the flower is paler and spotted, sometimes with white, while in others light-brown spots are present in lines. The species is said to grow wild in dry, shady places on low hills in Japan. In this country, on account of its late-flowering habit, being at its best in December, it requires a well-sheltered position if it is to be seen at its best. Seed is seldom produced, as the stems are cut down by frost soon after flowering, but the plant is easily increased by division of the root-stock. There are only half-a-dozen species of Gentian found in Japan, and G. scabra is the finest of them. In Northern China members of this genus are far more abundant.

LINNEAN SOCIETY.—A meeting will be held on March 3, at 8 p.m., when the following paper will be read, "Our British Nesting Terns" (with lantern slides), by Mr. W. BICKERTON, F.Z.S., M.B.O.U.

ROYAL AGRICULTURAL SHOW.—We are informed that Mr. CHARLES COLTMAN ROGERS presided at a meeting of the Forestry Committee of the Royal Agricultural Society held recently, when the arrangements for the Forestry Exhibition at Liverpool were considered. Mr. E. LOVELL CLARE and Mr. T. A. EARLE attended the meeting, as representing the local Forestry Committee, and submitted proposals for a Plantations Competition, on somewhat similar lines to that held in connection with the Gloucester Show of last year. It was decided that, if sufficient financial support were forthcoming, a competition, confined to the districts of Lancashire, Cheshire and North Wales, should be carried out for plantations under varying conditions, namely: (1) growing on a rich or growing on a poor quality of soil; (2) mixed or unmixed; (3) Conifers or hardwoods; (4) from five to 30 years from date of planting. The Forestry Exhibition to be held in the Liverpool Show Yard will be on the same general lines as that at Gloucester last June.

THRIPS ON PEAS.—The *Journal* of the Royal Agricultural Society (vol. lxi.) gives an account by the zoologist to the Society of observations and experiments on the thrips which attack garden Peas. Though it is not yet known where the insects pass the winter, it was observed that the eggs were always found beneath the surface of the "sheath of the stamens." The only effectual mode of dealing with the pest is that of topping the plants, just as Beans are topped when attacked badly by aphids. Apparently the top-most shoots are the seat of the main attack.

HORTICULTURAL EXHIBITION AT FLORENCE.—We remind our readers that applications for space at the Florence Exhibition (May, 1911) must be sent to the Executive Committee before March 31, 1911. Particulars of the exhibition may be obtained from the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall Street, London, E.C.

MANURING OF PLUM TREES.—The results of manuring experiments made by Herr HOFFMANN on Plum trees in an orchard belonging to the town of Gezmersheim (Germany), and published in *Mitt. Deutschen Landw. Gesell.*, No. 2, 1910, are summarised in the February number of the *Journal* of the Board of Agriculture. At the beginning of the experiment the trees—which were growing in a poor, light sandy soil—were in a very unsatisfactory condition. The application of lime only was without beneficial effect, and the addition of lime, potash and superphosphate did no good at all. When, however, the trees received a heavy dressing of a complete manure (potash, superphosphate and nitrogen in the form of nitrate of soda or sulphate of ammonia) and lime in addition the yield was increased enormously, viz., in the proportion of 27:290—this is nearly elevenfold. The trees were suffering evidently from nitrogen hunger, and in the absence of nitrogen no other manurial substance produced any effect. When, however, nitrogenous manures were applied, the trees were able not only to make use of them, but also to employ profitably the phosphates, &c., with which they were supplied.

PALMS IN CULTIVATION.—The thirty-first *Bulletin* du Département de l'Agriculture aux Indes Néerlandaises consists of a revised alphabetical list of the Palms cultivated in the Botanic Garden of Buitenzorg, Java. This collection is one of the largest in cultivation, and numbers some 450 species and varieties, referred to 92 genera. Of some of the more important kinds a number of varieties are grown. Thus, of the Coconut *Cocos nucifera*, nearly 20 varieties are enumerated, some bearing only vernacular names, but most of them both vernacular and Latin names. Of Areca Catechu, the Betel Palm, 15 varieties, distinguished by native names only, are given. Upwards of a dozen species of Phoenix are enumerated; but, strange to say, *P. dactylifera*, the Date Palm, is left out! This Palm is, perhaps, even of greater importance than the Coconut Palm, though not so widely cultivated. The varieties are numerous, and some particulars of a selection are given in the *Gardeners' Chronicle*, new series, vol. xv. (1881), p. 625. The omission of the Date Palm is certainly accidental, as it appears in previous lists. Comparing this list with the Kew collection, we find that the latter is richer both in genera and named species, chiefly owing to the New World Palms being much more numerously represented. For example, Buitenzorg has four species of *Chamædorea* against 30 at Kew. In all other respects, Buitenzorg has the advantage both in individuals and development, as it is situated, within the Tropics, at an elevation of less than 1,000 feet, and all the Palms are grown in the open air. Naturally, the Malayan element is strongly represented.

DEATHS AMONG ENGLISH GARDENERS IN AMERICA.—We learn from the American gardening papers of the death of the following horticulturists of British origin.

Mr. WILLIAM SCOTT MONRO, who was a native of Forfarshire, was born at Montrose in 1835, and was at one time employed at Messrs. METHVEN'S nursery, Leith Walk, Edinburgh. He specialised in the culture of Ericaceous plants, and was engaged by Messrs. METHVEN as foreman for a period of 17 years. In the "sixties" he went to America as gardener to the Mitchell and Grandreth estates at Tarrytown, New York, leaving there in 1879 to take charge of the conservatories in Golden Gate Park, San Francisco. Finally he started in the nursery business, first in Napa County and later in Vallejo, making a speciality of Ericas and Epacris.

Mr. JAMES BEST, who died on January 15, was a Cornishman by birth. He went to California from Australia about 40 years ago, settling in Santa Clara Valley as a florist and nurseryman. He was one of the pioneers of the Santa Clara district, and at the time of his death was one of its most influential citizens.

Mr. JOHN PUGH BURN was a member of the firm of Messrs. THOS. MEEHAN & SONS, florists, of Germantown, Philadelphia. Mr. BURN died suddenly on January 14.

THE SPREAD OF WART DISEASE (BLACK SCAB) OF POTATOS.—Inspectors of the Board of Agriculture report that in 1909 wart disease occurred in, and was almost confined to, an area including Lancashire (south of the Ribble), Cheshire, Shropshire (north of Shrewsbury), Staffordshire, and certain parishes in Warwickshire and Worcestershire adjoining Birmingham. From this centre the disease was traced, spreading somewhat irregularly in southerly and westerly directions. So far, few field crops have been affected, even within the central area of infection. There, and also in the outlying districts, the disease is, according to the inspector's report, confined mainly to allotments and gardens. That proper precaution in the purchase of seed tubers should be taken is abundantly evident.

GRASS AND FRUIT TREES.—Experiments carried out by the National Fruit and Cider Institute, and also by the Harper Adams Agricultural College, confirm the conclusion reached at Woburn that trees in grass develop less vigorously than those in cultivated land. In the former experiments a comparison was made between the girths attained by trees in grass and trees within cultivated areas of 6 feet and of 9 feet. The averages obtained were in the following proportions:—165, 177, 194. The latter experiments point to a similar conclusion, and also indicate that removal of the grass results at once in an increased growth of the trees.

EDIBLE AND POISONOUS FUNGI.—The Mushrooms afford a striking confirmation of the commonplace observation that the presence of a few bad individuals among a community suffices to bring discredit on all its members. Thus, as is pointed out in the *Journal* of the Board of Agriculture (vol. xvi., No. 11, February, 1910), of the higher fungi, among which Mushrooms are included, the poisonous members are but few in number, whereas the edible kinds amount to something like 50. The article, which is illustrated by three admirable colour-plates, drawn by Mr. GEORGE MASSEE and Miss IVY MASSEE, points out that the rough-and-ready tests applied to distinguish edible from poisonous kinds are untrustworthy. Neither the "peeling" test nor the "silver spoon" test suffices for this purpose. Hence a would-be experimenter is well advised

to learn to identify the species which he fain would try. The edible species described in this instalment of what promises to be a useful series of articles are *Agaricus campestris*, the common Mushroom, of which the cultivated form is probably a variety; *Agaricus arvensis*, the horse Mushroom, which is sold by the ton in London; and *Agaricus elvensis*, the tufted Mushroom, on the sporadic occurrence of which we have published several notes. *A. elvensis* is found under the drip of trees, particularly Oaks, and, as the writer suggests, well deserves a trial in cultivation.

FRUIT PRODUCTION IN THE BRITISH EMPIRE.—The Agent-General for Tasmania will read a paper before the Colonial Section of the Royal Society of Arts on Tuesday afternoon, March 1, on "Fruit Production in the British Empire." The chair will be taken by the Master of the Worshipful Company of Fruiterers.

LAW NOTES.

ASSESSMENT OF GLASSHOUSES.

HAMILTON VERSUS THE EDMONTON UNION.

In July, 1908, upon the revaluation of the Edmonton Union, the occupiers of most of the nurseries in the parishes of Cheshunt and Waltham Abbey decided to form a combination to appeal against the assessment of their properties, which in most cases had been practically doubled.

Mr. J. B. Slade, of the firm of Messrs. Protheroe & Morris, was instructed to represent them before the Assessment Committee, but, after a series of meetings with the committee and their valuer, and negotiations extending over a period of about 18 months, he was unable to obtain what was considered a sufficient reduction in the figures.

It was therefore decided to appeal to Quarter Sessions in the whole of the cases, numbering 41 in Cheshunt and six in Waltham Abbey, but, by agreement with the Assessment Committee, it was arranged that four properties should be dealt with as test cases, two being selected by the appellants and two by the Assessment Committee, the following being chosen:—Mr. J. R. Hamilton's Trinity Nursery, Marsh Lane, Waltham Cross; Mr. A. Matthews' Park Lane Nursery, Waltham Cross; Mr. E. Rochford's Mill Lane Nursery, Cheshunt; and Messrs. Thomas Rochford & Sons, Ltd., Turnford Hall Nurseries, near Broxbourne, which were to be taken in the order named.

The Justices of the Hertford Bench decided to hold a special adjourned Sessions to deal with these cases, and Mr. J. R. Hamilton's case was heard at Hertford on Friday and Saturday last, the 18th and 19th inst.

The appellant was represented by Mr. H. E. Duke, K.C., M.P., Mr. Bernard Campion, and Mr. E. H. Tindal Atkinson, instructed by Messrs. Hutchison and Cuff, solicitors, and the Assessment Committee by Mr. J. A. Simon, K.C., M.P., Mr. W. C. Ryde, and Mr. E. C. Fulton, instructed by Mr. F. Shelton, the clerk to the Guardians.

Mr. Duke, in opening the case, said that this appeal, with the three others before the Court, had been taken as representing the 41 appellants to this Quarter Sessions and the six to Chelmsford Quarter Sessions, which had been respite pending the settlement of these cases. He referred generally to the character of the nursery, and stated that the quantity of produce from a nursery of this kind for the first three years of its life is much in excess of what can be obtained in subsequent years. Another element to be considered was the cost of resoling when the virgin soil inside the houses had become stale. He referred to certain experiments which Mr. Hamilton had conducted at this particular nursery, and also at his two other establishments, and comparisons were given of the results of growing Cucumber plants raised from seed at his Albury nursery and then planted out both at that nursery and at the property in question. At the property under appeal, the plants were three weeks later in fruiting, and the productivity of the plants was very much less.

Mr. J. R. Hamilton, the appellant, stated that all the virgin soil at the nursery was exhausted, and new soil had to be brought in from other land which he owned about a mile and a half away, and, although he was using the best methods of culture and he had tried the experiments referred to, he could not produce any profit from this property. The result of Cucumber growing was to cause the soil to become infected with insect and fungoid pests, and although he had tried in many ways, he had not been successful in getting rid of these troubles.

In cross-examination, he said that at one of his other nurseries, where he had built the glass himself, it had cost him about £1,400 to cover an acre of ground with glasshouses 200 feet long by 31 feet wide, which was an average of about £200 per house, and this included the cost of hot-water piping and boilers.

The nursery in question contained 86 greenhouses, built between 1888 and 1891, mostly 12 feet wide and nearly all 200 feet in length, and the actual ground area covered by these houses was 4 a. 2 r. 34 p., and the other buildings—water tower, stabling, and packing shed—10 p., and, in addition, the pathways and other land covered an area of 6 a. 2 r. 19 p., making a total of 11 a. 1 r. 23 p.

Mr. Edmund Rochford, of Mill Lane Nursery, Cheshunt, gave evidence as an experienced grower, and said that extra large crops were obtained in the first three years of the life of a nursery. He stated that the soil became infested, and the crops gradually diminished after the first three or four years. The trouble was with the pests in the soil, and it was impossible to entirely stamp them out in spite of all the methods which experience taught the growers to use. He gave his experience as to the average life of the greenhouses erected for this particular purpose, and said that, in his opinion, there was no value in the glasshouse on Mr. Hamilton's property beyond their break-up price. He stated that in covering one acre of ground with houses each 200 feet by 28 feet 6 inches, an expenditure was incurred of about £1,100, this including a percentage for contingencies.

Dr. J. A. Voelcker, M.A., F.I.C., consulting chemist to the Royal Agricultural Society and Royal Horticultural Society, gave expert evidence regarding the many insect and fungal pests created by the intensive cultivation of the soil under glass and as to the impossibility of thoroughly ridding the houses of these pests.

Mr. George Massee, F.L.S., V.M.H., an assistant keeper at the Royal Botanic Gardens, Kew, also gave similar evidence, and said that the unnatural conditions of hot-house culture induced epidemics of certain pests which growers were unable to dispel, owing to the action of air, rain, wind, frost, and other natural means of purification being excluded. The pests referred to gradually got to the subsoil, until it was practically saturated, and it was only by renewing the top soil every year that any profitable results could be obtained. Eventually the subsoil becomes so contaminated that nothing whatever can be done in the way of cultivation of the soil in the houses.

Mr. J. B. Slade, F.S.I., stated that he had had experience extending over 25 years, in dealing with the letting, selling, and valuing of horticultural properties, and had acted for Union Assessment Committees and appellants in many cases of a similar character in different parts of the country. He then gave his valuation of the property, giving details of his figures, showing the estimated rateable value as follows:—

	£	s.
Glasshouses and land, 4 a. 2 r. 34 p. at £25 per acre	117	16
Land, 6 a. 2 r. 29 p., at £3 per acre say	21	0
	£138	16

During a very long cross-examination, he stated that he had made a recent inspection and careful valuation of the glasshouses and trade buildings, and, as a going concern, in his opinion the value amounted to £3,332. When he first attended before the Assessment Committee, he valued the glasshouses at £4,465, but that was 18 months ago, and, owing to their age and character, in his judgment they were depreciated in value to the extent of 20 per cent. He had also made other suggestions to the Committee, with

a view to arriving at a settlement, his view being that the great depreciation which took place in the value of glasshouses was not sufficiently taken into account when the rateable value was fixed.

Mr. Slade was asked various questions with regard to the nursery register published by his firm, and he stated that for some time it had been very difficult to dispose of commercial nurseries as going concerns.

Mr. P. Michael Faraday, F.S.I., of the firm of Faraday and Rodgers, rating surveyors, said he acted for a large number of unions in different parts of the country. He had inspected this property, and considered the value of the same with Mr. Slade, and he agreed with his figures.

Mr. Simon, in opening the case for the respondents, dealt briefly with the points he asked the Justices to consider in dealing with this appeal.

Mr. W. H. B. Castle, F.S.I., of the firm of Castle & Son, rating surveyors, said he was valuer to the Edmonton Union, and he had made an inspection of this property, and he valued the glasshouses, throwing in the buildings, at £6,300, and estimated the rateable value of the property at £372. He said that the houses must have cost much more than this to build, but he could not say what the probable cost was. On being pressed, he said he thought perhaps it might have been £7,000 to £8,000.

Mr. H. Trustram Eve, F.S.I., rating surveyor and secretary to the Farmers' Club, said he had made an inspection and independent valuation of this property, and his figures worked out at £571 gross and £381 rateable. He said that in his opinion these houses were in excellent commercial condition, and he thought that Tomatos could be profitably grown on the nursery. He had valued the whole of 10 unions during the last 12 years, and had never had an appeal to Quarter Sessions against his valuation.

Mr. W. P. Ryan, J.P., F.S.I., of the firm of Morris and Ryan, rating surveyors, said he had also made an inspection and valuation of these premises, and, in his opinion, the rateable value of the property should be £391. He said that the houses had been well maintained and that the commercial life of glasshouses, if properly repaired, is a long one. If a recently-built house and a house 10 years old were both efficient and well maintained, he would not make any allowance for depreciation of the latter.

Mr. Alfred Bowyer, of the firm of Alfred Bowyer & Jones, said that he had had experience in valuing these properties, and, in his opinion, the rateable value should be £375.

Mr. Simon then addressed the Court on behalf of the respondents, and then Mr. Duke summed up for the appellant. In dealing with the evidence, he stated that none of the respondents' valuers had been able to give anything but a hypothetical value to the structures.

The Court retired, and upon their return the Chairman said that they had decided to allow the appeal, and reduce the assessment from £498 gross and £332 rateable to £330 gross and £220 rateable, costs to follow the event. The other three cases were adjourned until the next Sessions, on April 4.

The figures in the Supplemental Valuation List first appealed against were £675 gross and £450 rateable. These figures were reduced by the Assessment Committee to £498 gross and £332 rateable, the latter amounts being the figures appealed against at Quarter Sessions.

PREVENTION OF CORRUPT PRACTICES.

In the Marylebone Police Court, on the 23rd inst., a prosecution was commenced under the Prevention of Corruption Act, 1906, against a firm of nurserymen and their traveller. The case for the prosecution was opened, and the further hearing adjourned until Thursday, March 3.

DENDROBIUM DUCHESS OF ALBANY.

At the meeting of the Royal Horticultural Society, held on the 8th inst., Sir Jeremiah Colman, Bart. (gr. Mr. Collier), exhibited the pretty hybrid *Dendrobium* shown in fig. 61. It was raised from a cross between *D. Wiganianum* and *D. Wiganianum xanthochilum*. The seedling has well-formed, white flowers showing a slight blush tint and some purple lines on the side lobes of the lip, the centre of the lip having a slight sulphur tint.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE L.C.C. APPOINTMENT.—I heartily approve the protest made in the *Gardeners' Chronicle* for February 12. The leading article was most moderate, and did not fully express all the feeling that exists in the horticultural world in respect to this affair. I do not think the following point has been touched upon. Every year examinations are being held under the auspices of the Royal Horticultural Society for those employed in the parks under the London County Council and other similar bodies throughout the country. Those who fail to pass in these examinations are debarred from promotion, yet in the recent appointment a chief who knows nothing of these things is appointed over these men and over experienced superintendents in the parks under the L.C.C.! Surely these latter are the ideal men for such a post? I know that some feel there is something behind the scenes in this appointment. Is it the desire to get someone of "social position" to fill the post? If not, what is it? The "men of the north" do not do things in this way; for example, the Edinburgh and Glasgow appointments; they are too "canny" for that. The late chief under the L.C.C. was not, I think, an Army man. Lieut.-Col. Sexby was a colonel of Volunteers. J. Hudson, V.M.H.

Horticulturists have indeed cause for indignation at the action of the London County Council in appointing an Army officer to the post of Chief Officer of the London Parks. That such a retrograde step should have been taken is the more to be deplored at a time when the æsthetic possibilities of our parks are becoming so widely recognised. Without long experience both in the art of gardening and in that of using plants to produce their best effects, no one is fitted to take charge of a park. Discipline is required no less—indeed, far more—by the trees, shrubs and flowers than by the park staff. To learn to train soldiers is not to learn to train plants. The world is full of talk about "back to the land"; but when a post is vacant for which only a man who has passed years in working on the land is a proper candidate, some other is chosen. The effect of such an action on young men seeking careers in horticulture must be deplorable. The moral they are likely to draw is that to qualify to succeed to the better posts they must learn to cultivate a good address rather than to cultivate plants. No wonder that so many of the young men of real ability emigrate, when they find posts to which they might legitimately hope to aspire filled by recruits from other professions. F. G. Drew.

The appointment of a soldier to the position of Head Gardener to the L.C.C. is the greatest insult to our profession we have ever had. Mr. W. Good (see p. 124) advises study in horticulture as a means of getting such appointments, but this is not necessary, as it appears to me that the less you know the better your chance of the position. The farce of advertising for qualifications is the most absurd thing I have ever heard of, and the L.C.C. should pay for the farce and not charge it to the rates. George Brook, Bristol.

SCHOOL GARDENING IN SOUTHERN SCOTLAND.—With reference to this important subject, it may interest some of your readers to learn that we have, in the estimation of Mr. Andrews, one of the leading Scottish Inspectors of Schools, two of the best school gardens in Scotland, in this remote, peninsular parish of Kirkmaiden, admirably superintended by Mr. R. Davidson and Mr. John Laird. During last summer I had the privilege of being present at an interesting function in connection with the garden at Port Logan School, when prizes to the most successful horticultural pupils were distributed by Mrs. McDouall, of Logan House, who has always taken a deep interest in the art of horticulture, and who also delivered an admirable address on the elevating and refining influence of gardening. I may add that Mr. David A. McClew, factor on the Logan estates, purposes presenting a considerable number of Sweet Pea plants in April (each of these being separate varieties of great merit and reliability) to the more advanced horticultural pupils for their encouragement in the cultivation of this flower. David R. Williamson.

A NATIONAL DIPLOMA.—Mr. Good's interesting letter (see p. 124) is sure to attract attention. With much of what he says I am in full agreement, but with the apprenticeship system practically dead, it is hardly fair to contend that, "A National Diploma should only be granted to those who have served as apprentice, &c.," while with the departmental system in vogue, the "thorough training" of many a "journeyman and foreman" is now gained entirely under glass.

knowledge, but also his ability to teach, a quality of quite a different character. One often meets with very clever men who are absolute failures as teachers. Mr. Good is fully aware of the weight education committees give to experience in teaching, and rightly so, because present-day examinations only prove ability to learn. Therefore, if the National Diploma is to be any help to education committees, the examination must contain tests in teach-

FREESIAS FROM SEED (see pp. 76, 124).—On February 9, 1907, we sowed seeds of *Freesia refracta alba*. Ten seeds were placed in each 4-inch pot, and they were germinated in gentle heat, the temperature never being lower than 50°. Every seed grew; the seedlings were treated in much the same manner as half-hardy annuals until May 9, when some were planted on rockeries in sheltered, sunny nooks having a southern aspect. Water was applied as often as required, and the plants were given a few dressings of Clay's fertiliser. They commenced to flower on July 22, 1907, and continued in bloom until the end of August. These plants ripened seed, which was sown in 1908, but only 4 per cent. germinated. Some of the original plants are still alive, the only protection given them being a piece of slate to throw off heavy rain in winter. They have not flowered since 1907. In 1908 the leaves did not appear until October, and in 1909 it was nearly Christmas; they are green now. *John Edwards, Sylfaen Gardens, Welshpool.*

PRIMULA FORRESTII.—From the interesting note in your last issue from Mr. Reginald Farrer, I regret to learn that he has lost *Primula Forrestii*. In this cold situation, at an altitude of 700 feet, my plant has wintered well in a crevice between rock stones with a north aspect, growing in sandy loam, mixed with limestone chippings. The plant has now green leaves which have not been touched by the frost, and they look as though they might belong to the common Primrose. *Primula Littoniana*, too, has wintered well, also *P. Cockburniana* and Veitch's *Cockburniana* hybrid "Unique." These plants show strong crowns just now about an inch below the surface. *Primula Bulleyana* and *P. pulverulenta*, with the habit of *P. japonica*, also show strong crowns in a damp situation. *W. A. Milner, Totley Hall, Sheffield.*

THE EFFECT OF GRASS ON TREES.—Mr. Spencer Pickering, writing on this subject in the *Gardeners' Chronicle* for December 18, vol. xlv., p. 409, says: "A large number of Apple trees were planted in rows, 11 feet apart, in 1904: the ground in one row was kept tilled, and that in the other row laid down to Grass. The Grass, when cut, if left to rot on the ground, and the same amount of manure is given to both rows of trees."—"Those in the tilled soil are now such large trees, that half of them had to be removed, their spread being some 15 to 16 feet; those in Grass did not grow at all for several years, and only began to make growth when their roots extended beyond the grassed area; they are still miserable specimens of trees, about one-sixth the size of the others, and the crops borne by them have only been about one-tenth of that of their neighbours." The trees referred to had been planted five years at the time Mr. Pickering penned his article. Although Mr. Pickering holds that the grassed soil is actually richer than the tilled soil, in the beginning of the third paragraph he says, "The behaviour of a tree in Grass is clearly a case of starvation in a land of plenty." The behaviour of the two experimental rows of Apple trees referred to above appears to be involved in complete mystery. As assuming that the depth and fertility of the soil in which the two rows of trees were planted were the same, and that trees of the same variety and of equal size and vigour were properly planted on or about the same date, I fail entirely to understand the extraordinary behaviour of the two rows of trees, unless, upon the assumption that both lots of trees had each received separate applications of two kinds of chemical manure of opposite character—the one stimulating growth in one row of trees in a remarkable way, and that in the other row prejudicially affecting the trees to such an extent that they only began to make growth after a rest interval of four or five years, seeing that the trees in No. 1 row are alleged to have made a spread growth of 15 to 16 feet within a space of five years, while those in No. 2 row, it is asserted, "did not grow at all for several years, &c." Mr. Pickering thinks that a possible explanation of the stunted growth in No. 2 row of trees is "that the growth of the Grass results in the formation of some substance which is poisonous to the tree," adding, "that an active poison may be produced in various ways, such as decomposition of the debris of the Grass, actual excretion from the Grass roots, or as a product of bacteria present in the soil." I think the foregoing conjectures



FIG. 61.—DENDROBIUM "DUCHESS OF ALBANY."

(See p. 138.)

We used to call such men "exotics" in my bothy days. Mr. Good thinks that, "A National Diploma would be a guide to education committees in the selection of men suitable to direct the young minds in the paths they ought to follow." That would all depend on the character of the examination. Mr. Good says, "The R.H.S. examination is not a complete test." I fully agree. An examination for a National Diploma should not only prove a candidate's ability to absorb

ing, and a candidate should take a class of pupils in practical horticulture to demonstrate his ability to show how gardening operations should be performed and why. He should also lecture before students to prove that he can set before others, in plain statement, the knowledge he himself has acquired. After passing such tests, the National Diploma would certainly be a guide in the matter. *William J. Hurford, Sutton, Surrey.*

may be dismissed as imaginary, when we remember the thousands of grand specimen trees to be seen in private and public grounds in every county in the United Kingdom luxuriating in Grass-covered soil of various kinds, and resting on substrata of clay, gravel, chalk, and limestone, as also the many fine specimens of Apples to be met with in orchards. Those trees would also go to show conclusively that the conjectures and possibilities put forward in Mr. Pickering's interesting article do not afford any evidence to show that Grass-covered soil is harmful to the root-growth of trees. I do not think that Mr. Pickering's experiments with Apple trees in pots buried in the ground and taken up and examined, and weighed every two or three days with a view to testing the effect of Grass roots is likely to assist the cause of high-class fruit culture in any useful way. However, the result of his investigations in this direction may prove helpful to those engaged in hardy fruit culture later. I wish him every success in his laudable work: Mr. C. Bogue Luffmann, writing on this subject in the *Gardeners' Chronicle* for January 22, p. 60, says that "Grass leads to irregular root and head growth, and fosters dirt and disease," which he remarks, truly enough, should be an offence on any estate. It would be interesting to learn upon what grounds Mr. Luffmann arrives at the conclusion that trees growing in land having a Grass surface should be more inclined to make irregular root and branch growth than trees growing in tilled soil. In the case of irregular head or branch growth of both sets of trees, the practised fruit-grower would rectify these things in the ordinary way while in active growth by removal of the extra-strong or irregular growths. Mr. R. Parker states in the same number (p. 61) "that trees growing in Grass-covered soil may make growths that are excessively vigorous and unfruitful," unmindful of the fact that trees growing in tilled soil are just as likely to do the same thing. The fact that many orchards throughout the country present a deplorable appearance must not be attributed to the fact of the trees growing in Grass-covered land, but to neglect on the part of the owners, in that year after year the trees are allowed to make unrestricted growth, with the natural result that the branches become crowded to such an extent as not to admit light and air among them. Consequently, the branches become infested with moss and lichen, "dirt and disease" if you will; but this undesirable state of things must not be attributed to the fact of the trees growing in Grass-covered soil, as Mr. Luffmann would appear to suggest. A low, damp situation will also contribute to the presence and development of parasitic diseases. Years ago, I had under my charge a good-sized orchard, which was situated in a corner in a hedged-in portion of the home park in the Avon Valley. The trees were of large dimensions, many of them (including Blenheim Pippin, Ribston Pippin, and other good varieties) requiring the aid of a 40-round ladder to gather the fruit. The trees had the branches well thinned out, and those retained to yield the annual supply of fruit were syringed with hot liquid lime, applied from the garden engine at intervals of three or four years, with the result that the trees remained in vigorous condition and bore heavy crops of fruit most years; Mulberries, Medlars and Quinces also did remarkably well in this Grass orchard. The Grass was cut early in the season every year for the horses to eat in a green state, and a good dressing of short manure was spread over the surface in the autumn, the substance of this being worked down by the agency of worms and rain. Whenever I planted young trees in this orchard, good-sized holes were excavated, the top spit of soil being placed in the bottom of the holes Grass-side down. A little well-rotted manure was incorporated with the natural soil, fresh soil being added if considered necessary. The trees were planted in this mixture, the same depth in the soil as they were before, making it firm in planting, and following this operation with a surface dressing of manure. I have refrained from writing on the subject until now, thinking that some practical writer more competent to treat the subject than myself would have done so, for, after all, the subject is one for a practical fruit-grower to deal with. H. W. Ward.

STORM AT DROPMORE.—On Sunday, February 20, these gardens were visited by a storm of unusual severity. It lasted from 1 p.m. until midnight, and at about 7.30 p.m. reached cyclonic proportions, with lightning and heavy peals of thunder. A large tree of *Abies excelsa* in the pinetum was struck by lightning and split in two about 9 feet from the base. Three other trees of the same species were blown down close to the mansion. Many visitors to Dropmore will remember a fine specimen of *Tilia argentea* by the side of the carriage drive; this tree also was badly damaged and will have to be taken down. The fine, old *Pseudotsuga* (*Abies*) *Douglasii* suffered very little a few branches only being torn away, but one notable tree of *Cedrus atlantica glauca* has a large portion of one side, close to the top of the tree, split clean out, quite spoiling its shape. A large tree of *Cupressus nootkatensis*, planted in 1855, has also been blown over, but this I hope to replace in an upright position again. When at Boconnoc, in Cornwall, some years ago, we had occasion to remove some large Irish Yews to a very wind-swept part of the grounds. After planting we procured some stones, each weighing several hundredweights, and laid them over the roots of the trees. This effectually prevented them from moving, and the trees soon became established and have done well ever since. Chas. Page, Dropmore.

SEVERE GALES IN LINCOLNSHIRE.—The gales that swept over this part of the country from the 17th to the 22nd inst. were felt with great force in this district, the wind being due west. About 12 o'clock noon on the 20th inst., a hurricane was accompanied by torrential rain, the wind being from S.S.E. It continued with more or less force until late in the afternoon of the 21st inst. The most severe times were at 3.15 p.m. on the 17th and from 2 until 5 p.m. on the 20th. The damage done here is chiefly to trees, a large number being blown up by their roots, whilst others have been snapped off at about 10 feet from their base. Included amongst those destroyed are the following Conifers:—*Abies grandis* and *A. nobilis*, *Pinus austriaca*, *P. sylvestris*, *P. ponderosa* (a fine specimen), *P. rigida*, *P. Cembra*, *Picea nigra*, and others. A particularly fine specimen of *Sequoia sempervirens* had a marvellous escape, large trees falling around and about, crushing its branches to the ground, but, thanks to their springy nature, hardly a twig failed to spring back into place when released from the wreckage. Looking through the meteorological observations, I find a rather unusual coincidence. The gale of 1908 was recorded upon February 22, and in the corresponding weeks of 1907 and 1909 the records show very strong wind prevailing from the west. G. W. Young, Rampton Manor Gardens, Lincoln.

COTONEASTER SIMONSII (see p. 123.)—I think the present season is quite exceptional in the manner in which the plants are berried. Never have I seen them so thickly studded with the bright red berries which are even now (February 19) still in a good state of preservation. In some seasons the birds have cleared the berries from the plants long before this time. If this *Cotoneaster* were but evergreen, how much more valuable as a wall plant it would be! E. M.

GIANT ANTIRRHINUM.—Mr. Ortendahl's figure of, and remarks (*anté* p. 100) on a plant of *Antirrhinum majus*, 3 m. 45 cm. high, are very interesting. It may be mentioned in passing, however, that the conversion given into feet is incorrect, as to English measurement; but I believe that the Swedish foot measure is longer than the English, which would, perhaps, account for the discrepancy. In English measurement, 3.45 metres equal, within a small fraction, 11 feet 4 inches. The tallest *Antirrhinums* I have seen were growing among dwarf shrubs in a new plantation on pasture-land, and they were between 5 feet and 6 feet high, due partly, perhaps, to the proximity of the shrubs, but more to the fresh soil. So far as can be learnt from Mr. Ortendahl's communication, his *Antirrhinum* is not the result of selection through several generations, but a giant of the first generation. Parallel instances are not wanting, both in wild and cultivated plants, due always, probably, to unusually favourable conditions of soil and season. Under cultivation, the common Foxglove and the

common Mullein sometimes attain equally extraordinary dimensions, and among plants in a wild condition I have measured individuals of the common Hemlock (*Conium maculatum*), which were between 8 feet and 9 feet high. The question arises whether seed or cuttings from Mr. Ortendahl's *Antirrhinum* would, under ordinary conditions, produce individuals of unusual stature. "Specimen plants" of *Mignonette* and other cultivated plants afford examples of what can be obtained by high culture, and unusual care was bestowed on the *Antirrhinum* in question. W. B. H.

STRAWBERRIES.—In reply to W. P. R. (see p. 106), I may say that I did not pretend in the Hardy Fruit Calendar (see p. 86) to give a selection of the best varieties, but merely mentioned those that succeed best here on a light soil. I may add that I have discarded several varieties during the past few years, and Fillbasket was one of them; this failed to develop a good flavour here. In regard to Givon's Late Prolific, this variety is being tried, but has not fruited yet. I hope it will do well, for, as W. P. R. mentions, it received the highest number of votes in your instructive Strawberry census, and this fact proves it to be a first-class variety and a good grower in most counties. A. R. Searle.

VANILLISM.—In these days when new forms or features of disease to which the human form is subjected are constantly arising, generally to be met, by the way, with some remedy or cure of an equally novel character, it may be interesting, to those who cultivate Orchids, to know that Vanilla—the pod-like fruit of *Vanilla planifolia*—is, in its dried or commercial state, the source of a skin disease known as "Vanillism." It is satisfactory, from the gardener's point of view, to know that the sufferers from this disease are only those who have the handling or brushing of the cured "pods." It seems that this affliction attracted some attention some 20 years ago, and was then attributed either to the essential oil or crystals with which properly-cured Vanilla is coated, or frosted, as it is known in commerce—or else to formic aldehyde used to clean the bunches, because the men who used indiarubber gloves were not affected in their hands, though they frequently suffered about the face and neck. These opinions, however, seem to be now refuted, from the fact that synthetic vanillin has been found to produce similar eruptions on the skins of some workmen who are more susceptible than others. It may be said that artificial vanillin is now, and has been for some time, extensively used for flavouring in place of the true Vanilla "bean"; the artificial product being obtained largely from Clove oil. John R. Jackson, Claremont, Lympstone.

PRUNING OF YOUNG VINES.—Mr. Ward (see p. 125) says that his method of growing the young vines the first year "is a simple matter." Now let us see how simple it is, or, rather, I will show how elaborate is the method that requires no fewer than 46 lines of the *Gardeners' Chronicle* to teach beginners how to carry out quite a detail in the management of newly-planted young vines. I still think "for the beginner my plan is desirable." Let us note the result of the two methods—Mr. Ward's and mine. In the original article, p. 51, I said: "Vines should be expected to last in good condition for at least 25 years without renewal of the canes." This period was quite the minimum I had in my mind when I wrote. Now I will give the results of instances of facts achieved by the system advocated by Mr. Ward and myself. Mr. Ward planted at Longford Castle a new range of vineries during the spring of 1883. In 1885 he allowed the permanent vines to ripen a few bunches each. He says, "three bunches of Buckland Sweetwater weighed 12½ lbs. Gros Guillaume and Gros Colman yielded three bunches which weighed 30 lbs. and 13½ lbs. respectively." I cannot gather whether these bunches were cut from one vine or not. Mr. Ward is not clear on that point, but I assume they were; if so, they were extraordinary bunches from vines so young. From that time until 1896—13 years from the time of planting—Mr. Ward says "the vines continued to yield most satisfactory crops of Grapes," and Mr. Ward adds, "probably they do so still." It will be news to Mr. Ward to learn that his successor at Longford pulled out the vines and replanted

almost the whole of the vineries because the vines were past their best. This is the result of Mr. Ward's method of establishing vines, and which he pits against my method of pruning, as noted on p. 51. Mr. Ward's vines were cultivated from 13 to 15 years! Now for a few facts respecting the results of the method I advocate. In January, 1878, I struck eyes from 10 varieties of Grapes and grew them for a year in pots and planted them in the new vineries here at Swanmore in February, 1879, treating them as described on p. 51. The results have been most satisfactory, as annual crops of first-class Grapes have been, and are still, produced. During the first 10 years of their coming into bearing I gathered fruits from them which won 60 1st, 24 2nd, and six 3rd prizes at various shows. Since then many prizes have been won both by myself and my successor, Mr. Ellwood. Plants of Madresfield Court, Muscat of Alexandria, and Mrs. Pince produced bunches of 4 lbs. each last year, with full-sized berries and good finish, which, I think, were not amiss from vines 31 years old and which have annually borne heavy crops. Let us see what is the state of these vines at the present moment. The rods, measuring from the first wire, are 17 feet long, with a 2-foot stem. The circumference at the base is as follows: Muscat of Alexandria, 10½ inches; Mrs. Pince, 11 inches; Black Alicante, 10¼ inches; Madresfield Court, 9¼ inches; Lady Downes, 9¾ inches; and Black Hamburgh, 9½ inches. From the appearance of these vines I see no reason why they should not continue to give satisfactory results for another 30 years. I fear I have trespassed somewhat long on your valued space, but in justification of the system I advocate of pruning young vines I felt it was imperative that I should state the case fully. I have seen hundreds of instances of faulty methods of pruning vines and have pointed out such to operators, and intend in the future to wage war against a system that can end in no other way than failure when we consider, as I do, that the life of a well-managed vine is almost unlimited. It is only necessary to remember what has been done by the old vine at Hampton Court and the excellent results that have followed good treatment, as exemplified in the bunches exhibited in the R.H.S. Hall last autumn. *E. Molyneux.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 22.—The Society's Hall at Vincent Square was, on Tuesday last, the scene of a brilliant display, the occasion being the usual fortnightly meeting. The exhibits of Orchids were remarkably fine, but interest centred in a splendid group from Sir Jeremiah Colman's collection, which was awarded a Gold Medal. There were numerous novelties brought to the notice of the Committee, and one First-class Certificate, six Awards of Merit, and one Botanical Certificate were conferred.

Not less important were the groups considered by the FLORAL COMMITTEE, although this body only granted one Award of Merit, this being given to a variety of tree Carnation exhibited by Mr. H. Burnett, Guernsey. Messrs. Jas. Veitch & Sons received a Gold Medal for a variety of subjects, including greenhouse plants, Cyclamen and forced shrubs. Beside the Gold Medal, no fewer than four Silver-Gilt Flora and two Silver-gilt Banksian Medals were awarded for exhibits of Azaleas, Ferns, Cyclamens, Carnations and paintings of floral subjects. There was little before the FRUIT AND VEGETABLE COMMITTEE, and no award was made in this section to a novelty. At the three o'clock meeting in the lecture room the third Masters Memorial Lecture was given by Mr. A. D. Hall, M.A., F.R.S., the subject being "The Adaptation of the Plant to the Soil." A summary of the lecture will be found on p. 143.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. Chas. T. Drury, Henry B. May, Jno. Green, W. J. Bean, R. C. Notcutt, R. Hooper Pearson, G. Reuthe, C. R. Fielder, R. W. Wallace, W. Howe, J. F. McLeod, J. Jennings, Jas. Douglas, Chas. Dixon, J. T. Bennett-Poe,

F. Page Roberts, Chas. E. Shea, Chas. E. Pearson, W. P. Thompson, E. H. Jenkins, Geo. Paul, Herbert J. Cutbush, Geo. Gordon, R. C. Reginald Nevill, Jas. Hudson, and Jas Walker.

A magnificent exhibit of *Cyclamen latifolium* was staged by Mr. W. SEWARD, The Beeches, Hanwell. The plants were far superior to those usually seen at these and other exhibitions, each presenting a mass of large, brightly-coloured blooms, and strong, healthy foliage. (Silver-gilt Flora Medal.)

Another fine and extensive exhibit of this popular greenhouse plant was shown by Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea. The plants were arranged in batches of white, crimson, pink, salmon, mauve and other shades, the whole occupying a large table. Opposite to these, Messrs. VEITCH staged a miscellaneous collection of greenhouse flowering plants that formed a pretty floral picture, the subjects being admirably and skilfully arranged with regard to colour blending. One of the most pleasing combinations was made with *Primula × kewensis* (yellow,) interspersed with *Rhododendron* (*Azalea*) *Hexe* (crimson), with *Coleus thyrsoides* (blue), and a background of *Streptosolen Jamesonii* (orange), *Crocea angustifolia* was covered with its pretty pink, star-shaped blossoms. There was also a fine display of *Azalea indica*, *Boronia megastigma* and other subjects. As a floor group Messrs. VEITCH showed a collection of forced flowering trees and shrubs of the usual subjects, *Prunus triloba* and *Wistaria sinensis* being especially well flowered. (Gold Medal.)

Messrs. SUTTON & SONS, Reading, made an imposing exhibit of *Primula sinensis*. The plants were excellent little specimens arranged in half-circular batches of distinct colours, separated by a row of Crimson King variety, the front being filled in with varieties of different shades for contrast. They showed the beautiful Duchess type, also Giant Crimson, Salmon Pink, Improved White and others. As a separate group, Messrs. SUTTON showed batches of Hyacinths arranged in colour schemes with a setting of Ferns and the yellow Tulip, Fairy Queen. The varieties of Hyacinths were: (1) pale and deep pink; (2) cream and deep red; (3) pink and pale blue; (4) pale and deep mauve. (Silver Flora Medal.)

Messrs. GEO. MOUNT & SONS, LTD., Nurserymen, Canterbury, showed long-stemmed Roses of the varieties Joseph Low (pink), Richmond (red), Mrs. W. J. Grant (pink), Liberty (red), and a seedling with long narrow blooms of the shade of William Allen Richardson. (Silver Banksian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, Hertfordshire, again showed a corner group of Camellias as at the last meeting. (Silver Flora Medal.)

An imposing exhibit of Ferns was made by Messrs. HILL & SONS, Edmonton. They were all of exotic species and embraced about 100 varieties. Most of them had their new fronds, which, particularly in the case of the tinted kinds, produced a very pleasing effect. Some of the choicer specimens were *Lomaria L'Herminieri*, the fronds prettily tinted with pink; *Adiantum Hendersonii*, a very elegant species, also tinted pink; *Brainea insignis*, a beautiful specimen of this handsome plant, the young fronds being brownish; *Platycerium grande*, P. Hillii, *Nothochlæna sinuata*, with erect fronds, silvery beneath; *Adiantum Capillus-veneris imbricatum*, and *Polypodium conjugatum*, the tall fronds are broadened at the base to form a resting place for debris. *Selaginella grandis* has broad shoots, showing the spore-bearing branches at the ends. (Silver-gilt Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, also contributed a fine exhibit of Ferns, backed with New Zealand tree Ferns. Very fine specimens of *Pteris Summersii*, *Lomaria attenuata*, in which the drooping fronds arise from a tall stem; *Davallia brasiliensis*, *Platycerium Veitchii*, a rare species; *Nephrolepis splendens*, *Asplenium nobilis*, the finely cut fronds bore many bulbils, the tiny first leaves being wedge-shaped; *Lepicystis sepulta*, the erect, pectinate fronds of which are hairy; *Dictyogramma caudiformis*, *Drynaria rigidulum* and *Blechnum crispum* were noticed. (Silver-gilt Banksian Medal.)

Mr. H. BURNETT, nurseryman, Guernsey, staged a showy group of Carnations, amongst which was a fine sheaf of the new Mrs. Tatton variety (see Award). The variety named after Mr. R. F. Felton is a bold pink flower. There

were also well-grown blooms of most of the popular kinds. (Silver Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, N., showed a collection of well-grown Carnations, arranged with much taste. Lady Miller, the perpetual-flowering "Malmaison" variety, was represented by an excellent vase of blooms. Amongst the perpetual-blooming type, the following were the best in their several colours:—*Scarlet*, Britannia, O. P. Bassett; *white*, My Maryland, White Perfection; *crimson*, Harlowarden, President; *cerise*, Winsor, Winona; *pink*, Enchantress, Mrs. Edwin Gilman; Messrs. CUTBUSH also showed Alpine and hardy flowers, with a setting of forced shrubs. Both *Iris histrioides major* and *I. reticulata Krelagei* were a feature in this group. (Silver-gilt Banksian Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, showed Carnations, which embraced several seedlings raised at Bush Hill Park. Royal Purple is said to be very pretty, seen under artificial light; Regal Mauve is another of uncommon shade; Pink Delight is a dainty, well-formed flower; Rival is also new, the colour being cerise. There were also most of the standard sorts. Adjoining the Carnations were varieties of Azaleas, *Boronia megastigma*, *Eriostemon linearifolius*, *Cyclamens*, *Acacia ovata*, and other greenhouse plants. (Silver Flora Medal.)

A large and showy group of forced shrubs was put up by Messrs. R. & G. CUTHBERT, Southgate. The inclusion of brightly-flowered Azaleas made a bank of blossoms, and these were interspersed with Japanese Maples and such ornamental subjects as *Prunus triloba*, *Staphylea colchica*, *Wistarias*, *Lilacs*, &c. Choice varieties of Azalea were seen in Anthony Koster (yellow), Consul Ceresole (orange-pink), Mme. Anthony Koster (apple-blossom tint), and Elizabeth (deep pink). The group was arranged with much skill. (Silver-gilt Flora Medal.)

Mr. L. R. RUSSELL, Richmond, also staged a showy group of forced flowering shrubs, such as Lilacs, Azaleas, *Wistarias*, *Prunus triloba*, and *Forsythia suspensa*. (Silver Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, displayed varieties of Zonal Pelargoniums as trusses of cut blooms. The individual flowers were very large, those of Mars (scarlet) being 3 inches in diameter; another notable variety of this colour is New York, but the richest of this shade is Jupiter.

A group of *Cyclamens* was staged by G. STRANGE, Esq., Sulhampstead, Berkshire.

Messrs. C. BROOKS & CO., Basingstoke, showed a pretty *Primula* labelled Novelty. The colour is deep rose, with an inner orange-brown rim and a greenish-yellow eye.

Mr. JAMES DOUGLAS, Edenside, Great Bookham, Surrey, exhibited an exceptionally well-flowered plant of *Primula megaseaefolia*, a species not easy of culture. The specimen originally carried about 14 flower-spikes. (Cultural Commendation.)

A pretty group of Freesias, Italian Hyacinths, and Tulips was set up by H. S. BARTON, Esq., Hewshott House, Liphook (gr. Mr. Streeter).

Mr. GEO. REUTHE, Keston, Kent, exhibited uncommon shrubs and Alpine flowers in assortment. A small plant of *Pinus parviflora* bore several cones. Hepaticas were finely shown in this exhibit. (Silver Banksian Medal.)

Messrs. JAS. CARTER & CO., High Holborn, London, arranged a rock-garden exhibit, with a pool of water and a cascade supplied with water by an electric apparatus, and yet arranged on a table. The back of the pool was arranged with a tall bluff, down which the water trickled. The rockery was planted with Scillas, Snowdrops, Irises, Crocuses, Erythronium, Hepaticas, and other early flowers. (Silver Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed seasonable hardy flowers and bulbous plants in bloom. (Silver Banksian Medal.)

The Misses HOPKINS, Mere Gardens, Shepperton-on-Thames, showed a rock-garden exhibit planted with early-blooming hardy plants.

Messrs. GEO. JACKMAN & SON, Woking, Surrey, showed seasonable hardy flowers, including large batches of *Cyclamen ibericum roseum*, remarkably finely flowered. They also showed a seedling of hardy *Cyclamen* labelled album multipetalum. This is a pleasing novelty, with the

petals arranged like the screw of a propeller, very regularly. The flowers are pale rose, with a blotch of purple. We also noticed a pleasing variety of *Helleborus orientalis*, with purple dots on a white ground.

Messrs. J. PEED & SON, West Norwood, staged a large rock-garden exhibit, neatly arranged with Alpines and hardy plants, also small, succulent species. We noticed in flower *Saxifraga Burseriana*, *Crocuses*, including a fine lot of *C. Susianus*, *Saxifraga apiculata*, *S. (syn. Megasea) Stracheyi*, *Hepatica cerulea*, also numerous coloured *Primroses*, *Irises*, *Snowdrops*, &c.

From THE GUILDFORD HARDY PLANT NURSERY came a selection of seasonable subjects in flower, such as *Petasites japonica gigantea*, *Helleborus caucasicus punctatus*, and *Erica mediterranea hybrida*. The native *Hellebore*, *H. foetidissima*, was represented by a fine plant in flower.

Messrs. J. CHEAL & SONS, Crawley, Sussex, exhibited a well-arranged rockery planted with Tulips, *Hellebores*, *Iris reticulata*, and many other pretty species, with a selection of rock-garden shrubs, including *Olearia stellulata*, *Andromeda floribunda*, hardy *Ericas*, *Kalmia glauca*, and *Spiraea arguta* in flower, which gave additional brightness to the exhibit. (Silver Bank sian Medal.)

Messrs. HEATH & SON, Cheltenham, also showed a rock-garden exhibit, in which we noticed several uncommon species in flower. *Leptosyne gigantea* is a yellow composite, with *Coreopsis*-like foliage; *Eomecon chionantha* is of the Poppy family, but like a tiny Japanese *Anemone*. Of *Primulas*, we noticed *P. malacoides*, *P. megaseæfolia*, and *P. denticulata*.

THE CRAVEN NURSERY CO., Clapham, Yorkshire, showed large-flowered *Saxifragas* of the *Burseriana* type; one was a new variety named *Magna*, with flowers superior even to the beautiful *Gloria* variety. The stalks are shorter than those of *Gloria*, and are tinged with red. *Gloria* was represented by some splendid plants in flower. *S. Boydii alba* and *S. Burseriana speciosa* were also shown in fine condition.

Messrs. T. S. WARE & SONS, Ltd., Feltham, showed a rockery planted with a variety of subjects. *Iris fimbriata*, with branched inflorescences; *Androsace carnea eximia*, with its tiny rose-coloured flowers; and *Polonium rubra* attracted notice.

Messrs. R. & G. CLARK, LTD., Dover, were also the exhibitors of a rock-garden planted with many species in bloom.

Messrs. R. GILL & SONS, Tremough, Penryn, Cornwall, staged seedling varieties of *Rhododendron arboreum* and *R. barbatum*, and a remarkable plant of *Primula imperialis*, with foliage like a huge Cowslip. The exhibit also included some exceptionally fine *Violets* and a choice form of *Iris stylosa*. (Silver Flora Medal.)

There were several exhibits of horticultural sundries, including a novel system of glazing, shown by the UP-TO-DATE HORTICULTURAL AND PORTABLE BUILDING CO., 1, Barrington Road, Crouch End. No putty is employed, the pane of glass being held in position by a piece of india-rubber fixed on the sash bar. The glass is simply pushed in position under the rubber, which impinges tightly on it and keeps it in position. Messrs. W. WOOD & SONS, LTD., North British Walk, Wood Green, exhibited a fountain worked by a small electric motor. This attracted much attention. Some pretty floral studies were shown by Miss GUNDRY, Foots Cray, for which a Silver-gilt Flora Medal was awarded.

AWARD OF MERIT.

Carnation Mrs. Tatton. This is a beautiful pink tree *Carnation*, shown by Mr. H. BURNETT, Guernsey. The colour is like that of *Marmion*, the well-known variety of the *Souvenir de la Malmaison* section. In "Mrs. Tatton," the colour, though rich at the base, pales towards the fringed margins, which are nearly white. The flowers have excellent form, and are produced on long, erect stems.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshaw, C. J. Lucas, W. Boxall, R. G. Thwaites, Stuart Low, Fergus Menteith Ogilvie, J. Charlesworth, A. A. McBean, H. A. Tracy, Walter Cobb, J. Cypher, W. H. Hatcher, H. G. Alexander, A. Dye, W. P. Bound, W. H. White, H. Ballantine, Gurney Wilson, J. Wilson Potter, W.

Bolton, R. Brooman White, J. Gurney Fowler and Sir Jeremiah Colman, Bart., V.M.H.

There was a grand show of Orchids, the post of honour being filled by Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey (gr. Mr. Collier), with a noble group extending the full length of the staging on one side of the entrance of the hall, and for which the Society's Gold Medal was awarded. The raised centre was of hybrid *Calanthes*, with which were arranged the fine hybrid *Spathoglottis Colmanii*, with many spikes of bright yellow and crimson flowers; two finely-flowered plants of *Odontoglossum Edwardii*, the front being of white *Dendrobium nobile virginalae*. On each side were large numbers of *Dendrobiums*, principally hybrids raised at Gatton Park, and among which were the charming novelties *D. Lady Colman*, the profuse-flowering cream-white *D. Bartelsianum*, the labelum of which has a purple base; *D. Duchess of Albany*, certificated at the last meeting (see fig. 61); *D. Wiganianum aureum* and *Gatton Park variety*; *D. Gatton Purple*, one of the finest in size and colour; and many others, including the new *D. Mrs. Fenton Arnton*. (See Awards.) With these were arranged a good selection of *Odontoglossums*, *O. atropurpureum* (*Edwardii* × *sceptrum*), and some others being *Gatton* hybrids. *Cymbidium grandiflorum* had several spikes; a batch of yellow and red *Sophrolaelias* were effective; *Odontioda Bradshawiae* had 20 scarlet flowers and buds; various *Phalaenopsis*, *Bulbophyllum*, good *Cælogyne cristata alba*; *Sarcophilus Fitzgeraldii*, a selection of *Masdevallias*, the rare *Dendrobium Hodgkinsonii*; a fine mass of *D. æmulum*, and of *D. fusiforme*, with many spikes of white flowers; *Epidendrum polypulbon*, and other pretty species were also noted.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a group containing a good proportion of fine *Odontoglossums*, the latest new hybrid *O. Ceres* securing an Award of Merit. (See Awards.) The group contained a fine lot of *Phalaenopsis Schilleriana*; some excellent hybrid *Cattleyas* and *Lælio-Cattleyas*, including *C. Enid*, *C. Capri*, *L.-C. Bella alba*, a beautiful cream-white flower with deep purple front to the lip; very dark *L.-C. callistoglossa*, &c. Among hybrids of *Brassavola Digbyana* were several good flowers; *Brassavola-Lælio-Cattleya Winnifred* (*B.-L. Mrs. Gratrix* × *L.-C. Myra*) was a pretty new form with bright yellow flowers. Among others noted were *Cælogyne sparsa*, *Vanda Watsonii*, *Nanodes Medusæ* and others of botanical interest.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an excellent group containing several very fine new *Odontoglossums*, for the best two of which see Awards. The centre of the group was composed of well-flowered *Dendrobium Phalaenopsis*, around which were arranged good *Lælio-Cattleyas*, *Phalaenopsis Schilleriana*, a dark scarlet form of *Odontioda Charlesworthii*, large and of fine shape; richly coloured *Odontoglossum ardentissimum*, *Cælogynes*, including *ocellata*, *maxima* and *sparsa*; *Cynorchis kewensis*, with fine heads of rose-coloured flowers; the scarlet *Renanthera Imschootiana*; two *Pleurothallis Roelzii*, with drooping racemes of large claret-coloured flowers; *Dendrobium velutinum* and other rare *Dendrobiums*; *Oncidium splendens*, *Cymbidium Sanderi*, &c. Among curious hybrids was a plant of *Odontioda cuprea* (*Cochlioda Noezliana* × *Odontoglossum cristatum*) with a spray of rather dull-red flowers with yellow crest, and, although not showy, a very interesting cross.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Flora Medal for an extensive and varied group, the *Dendrobiums* being the most prominent. In the centre were some fine forms of *Cattleya Trianae*, the variety named *Monarch* being of fine size, shape and effective colour. With them were two specimens of the pure white *Cattleya Susanne Hye de Crom*, and behind an arrangement of *Oncidiums*, the most remarkable of which was *O. varicosum* Bush Hill variety, a clear yellow with a deep reddish-brown blotch at the base of the lip. Among *Cypripediums*, *C. Leeannum Lavertonianum* was remarkable for its large, finely-formed flower, the broad, white dorsal sepal being squarely arranged at the base, and bearing some dotted rose lines. *Lælio-Cattleya Cappei*, *L.-C. callistoglossa*, *L. Jongheana* and others were also included in the arrangement.

Messrs. J. CYPHER & SONS, Cheltenham, secured a Silver Banksian Medal for an effective group of *Dendrobiums*, *Cypripediums*, *Odontoglossums*, &c. The varieties of *D. nobile* and its pure white form, *D. splendidissimum*, *D. rubens grandiflorum*, &c., were effectively arranged with fine tufts of scarlet *Sophrontis*; *Aërides vandarium*, a fine specimen of *Cirrhopetalum picturatum*, *Cypripedium aureum virginalae*, and many other showy *Cypripediums*.

Messrs. J. & A. A. McBEAN, Cooksbridge, were voted a Silver Banksian Medal for a group containing *Cymbidium insignis* with two fine spikes; the pale primrose *C. eburneo-Lowianum concolor*; a fine lot of white *Lælia anceps*; a selection of their well-grown *Odontoglossum crispum*, *O. Edwardii* and the scarlet *Epiphronitis Veitchii*. Among *Cypripediums* specially attractive was *C. Memoria Jerninghamiae*, a fine flower which originated at Cooksbridge. *Lælia anceps Fascinator*, for which Messrs. McBEAN had previously secured an award, is a very large and finely-coloured variety, which well maintains its distinctness.

Messrs. MANSELL & HATCHER, Rawdon, Yorks., were awarded a Silver Banksian Medal for a group in which were some exceptionally fine forms of *Dendrobium infundibulum*, varieties of *D. Artemis*, *D. Chessingtonense* and other hybrids; *D. æmulum*, the violet-purple *Bollea Lalindei*, *Brasso-Cattleya Digbyana Mendelii*; selections of *Cattleya Trianae*; various hybrid *Odontoglossums* and *Vanda Watsonii*. Varieties of *Cypripedium aureum* included *C. aureum Hyeannum* with three flowers, and prominent in the group was a remarkably distinct and good *Cypripedium* raised between *C. villosum giganteum* and *C. Mrs. Wm. Mostyn*, the very dark lower part of the dorsal sepal contrasting finely with the white upper part.

Mr. E. V. Low, Haywards Heath, was awarded a Silver Banksian Medal for a compact group of exceptionally well-grown Orchids, among which were *Cattleya Trianae cœrulea* and *C. T. albo-violacea*, both white with violet markings on the lip; several white *Brasso-Cattleya Digbyana-Schröderæ*; *Cypripedium aureum Surprise*, *Odontoglossum crispum Jeanette*, a white spotted flower; *O. c. Raymond Crawshaw*, a very attractive variety, and a handsome *Lælio-Cattleya callistoglossa*.

Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander), showed *Lælio-Cattleya Goldfinch superba* (*L.-C. Warnhamiensis* × *C. Dowiana aurea*), a bright yellow flower with deep ruby front to the lip, the base being veined with gold. A flower of the remarkable *Brasso-Cattleya Alexanderi* (*B. Digbyana* × *C. citrina*) was also submitted.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed *Lælio-Cattleya Clive superba*, a good dark flower; *L.-C. Myra*, *Odontoglossum Vuylstekei* and the very fine *Cattleya Schröderæ The Prince*. (See Awards.)

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent *Cymbidium Lowgrinum* Rosslyn variety, darker than the original form.

Col. CARY BATTEN, Abbot's Leigh, Bristol (gr. Mr. Spowage), sent *Cypripedium Mrs. Cary Batten*, a very dark and good flower of the *C. villosum* class; and *C. Col. Cary Batten*.

W. P. BURKINSHAW, Esq., Hesse, Hull, sent *Cypripedium Chanteury* (*Euryades punctatum* × *insigne Chantini*) and *C. Chantecler*, a cross from *C. insigne Harefield Hall*.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. Black), showed *Odontioda Seymourii* (*Odontoglossum Uro-Skinners* × *Cochlioda vulcanica*), a highly interesting hybrid raised at Chessington. The well-arranged inflorescence bore many rather small, narrow-petalled flowers of a tawny red colour, the lip being marked with lilac, with a white patch in front; and a pretty hybrid *Dendrobium* between *D. Wiganiae xanthochilum* and *D. Thwaitesiae*, with yellowish-cream flowers having a purple blotch on the lip.

Mons. MAURICE MERTENS, Ghent, showed a good selection of hybrid *Odontoglossums*, several being of very fine colour; and a large, handsomely-blotched *O. crispum*.

Messrs. HEATH & SONS, Cheltenham, showed a selection of Orchids.

R. BROOMAN WHITE, Esq., Arddarroch, Garelochhead, sent a selection of cut spikes of good *Odontoglossum crispum*.

Messrs. WM. BULL & SONS, Chelsea, sent *Odontioda chelseiensis*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum splendens (eximium × Wilkeanum), from Messrs. SANDER & SONS, St. Albans. One of the most beautiful hybrids of its class, the flowers being, in form and substance, all that could be desired, and the colouring displayed in the most beautiful manner. The sepals and petals are equally broad and flatly displayed, the ground colour cream-white, a star-like arrangement of which colour appears around the column, and then is but little seen except on the narrow margin and tips of the segments; the rest of the flower is shaded with blended tints of purple and chestnut-red. The white labellum has clusters of purple blotches at the base and around the yellow crest.

AWARDS OF MERIT.

Odontoglossum Black Prince (Lambcauanum × Rolfeæ), from Messrs. SANDER & SONS. A very remarkable hybrid of a deep vinous-purple colour, with a very narrow silver margin to the sepals and petals.

Dendrobium Mrs. Fenton Arnton (melanodiscus × Findlayanum), from Sir JEREMIAH COLMAN, Bart., V.M.H. (gr. Mr. Collier). A pretty white flower with a bluish tint on the sepals and a purple blotch at the base of the lip, surrounded by a yellow disc.

Cattleya Schröderæ The Prince, from H. S. GOODSON, Esq., Putney (gr. Mr. Day). A remarkable and beautiful variety of true C. Schröderæ form and fragrance. The sepals and broad crimped petals are of a peach-blossom tint; the handsome crimped-edged lip having a ruby-purple blotch in front.

Odontoglossum eximium E. C. Rogerson (crispum × ardentissimum), from E. ROGERSON, Esq., Oakdene, West Didsbury, Manchester (gr. Mr. W. C. Price). This flower has a close resemblance to a good blotched form of O. crispum, but with a slight trace of O. Pescatorei. The flowers were clear white, with distinct rose-purple markings.

Odontoglossum Ceres (Rossii × Rolfeæ), from Messrs. CHARLESWORTH & Co., Haywards Heath. This is a good flower of remarkable shape and colour, and likely to develop further. Sepals and petals white tinged with primrose-yellow at the margins, the sepals being evenly spotted with claret-red, the petals having the spots on the inner halves only. Lip large, undulated, white, with a lemon-yellow crest, having slight purple markings.

Disa lacera multifida, from Messrs. CHARLESWORTH & Co. One of the blue Disas from South-east Cape Colony. Leaves grassy; inflorescence erect, 1 foot, and bearing six pretty, deep-blue flowers, the reddish lip being finely fringed.

BOTANICAL CERTIFICATE.

Diuris longifolia from Sir JEREMIAH COLMAN, Bart. A slender Australian terrestrial Orchid with grassy leaves and upright spikes of yellow flowers tinged with red, the curiously-arranged segments having the petals stalked and erect.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair), and Messrs. W. Bates, H. Markham, Alex. Dean, E. Beckett, G. Hobday, W. J. Jefferies, George Kelf, J. Davis, Owen Thomas, Geo. Reynolds, P. C. M. Veitch, Jno. Harrison, Chas. Foster, Geo. Wythes, W. Poupart, H. Somers Rivers, Jas. Vert, and Jos. Cheal.

Ten varieties of Leeks, selected from a trial of this vegetable at Wisley, exhibited such good culture, that the Committee awarded a Cultural Commendation to the SUPERINTENDENT. The best variety was Prizetaker, the stems being stout and solid, but rather short. Others of superior merit were Ayton Castle, Barr's No. 2, and Barr's No. 3. The other varieties were Giant Italian Winter, Broad Short, Musselburgh Selected, Barr's No. 1, Barr's Giant Winter, and Barr's Selected.

Messrs. SUTTON & SONS, Reading, staged a number of heads of Superb Early White Broccoli. The plants were raised from seeds sown in April, 1909, the seedlings being planted out in July, and afforded no protection whatever. The curds were not over-large, but they represented good, solid, useful heads, of excellent ser-

vice for the winter months. (Cultural Commendation.)

There were one or two exhibits of bottled fruits, including some tempting samples shown by Mr. W. POUPART, Farnleigh Orchards, Twickenham, for which a Silver Banksian Medal was awarded.

THE THIRD "MASTERS" LECTURE.

THE subject of the first of the "Masters" lectures for 1910, given by Mr. A. D. Hall, M.A., F.R.S., Director of the Rothamsted Experimental Station, on Tuesday last, was "The Adaptation of the Plant to the Soil." The chair was occupied by Prof. Dendy.

The lecturer began by stating that the object he had before him was to define the relationships between plant and soil which brought about certain familiar facts, viz., that in Nature many plants are strictly confined to a particular soil and district, and secondly, that in gardens certain plants "do" well, while others fail for no ostensible reason.

The lecturer said he had selected this subject partly for its own intrinsic interest and partly because the experimental work which he was going to take for his initial text had for many years occupied the attention of the distinguished man—the late Dr. Masters—in whose honour these lectures had been founded. He referred to the Grass plots at Rothamsted. In 1856, a piece of old Grass land was divided into plots. Each plot had been given a different manure, and the same manuring had been repeated on the same plots year by year until the present day. Under these conditions it soon became apparent that changes were establishing themselves in the constitution of the mixed herbage clothing the meadow surface: these changes were defined from time to time, and picking apart and weighing the species in representative samples of the vegetation. Finally, from about 1877 to 1880, Dr. Masters made repeated studies both of the plots and of the experimental material accumulated, the results being set out in an extensive joint paper in the *Philosophical Transactions* of the Royal Society in 1880.

The lecturer then proceeded to exhibit photographs of the turf taken from some of these plots at Rothamsted, showing how very different had become the type of vegetation occupying the surface under the influence of different manuring. Other photographs showed in diagrammatic form the distribution of selected species; for example, leguminous plants, like Trifolium and Lathyrus, make up nearly half the vegetation on plots receiving phosphates and potash only, while they are absent from plots receiving large quantities of nitrogen in the form of ammonium salts. Festuca ovina is abundant on plots receiving ammonium salts, and little seen on plots receiving nitrate of soda. Briza media has appeared, and constitutes a large portion of the herbage on the unmanured plots only. Bromus mollis and the umbellifer Anthriscus sylvestre are found only on the plots receiving nitrate of soda. In some cases the causes for this distribution can be apprehended, e.g., the leguminous plants are supplied with nitrogen from the atmosphere, and are, therefore, fully fed by a fertiliser containing phosphates and potash, but no nitrogen, a mixture which is of little or no service to the Grasses. Again, ammonium salts encourage shallow-rooting plants, because they are retained by the surface layer of soil; nitrate of soda is, on the contrary, washed down by the rain, and encourages deep, tap-rooting plants. Such explanations, however, do not cover all the facts observed. In view of the great divergences in vegetation thus artificially induced, it would seem to be a simple problem to find out by the analysis of a particular soil and plant how to adapt another soil to that plant. At once, however, there are difficulties: all plants, said Mr. Hall, contain the same elementary substances derived from the soil, and in very much the same sort of proportions. We can, as de Saussure and Liebig did, group plants into silica lovers, lime lovers, potash lovers, by the prominence of these particular constituents in their ash, but on experiment these groupings possess little significance, because the differences between the composition of the same plant growing on different soils are often greater than those separating the various groups. With one or two

notable exceptions, we can never point to any particular constituent as specially associated with a given plant.

Moreover, the lecturer went on to say, soils of the most diverse type possess much the same chemical composition. How, then, are these facts to be reconciled with the great differences in the nature of the herbage on the Rothamsted plots which have been established by differences in the chemical nature of the food supply? We have, said Mr. Hall, to bring into account the intense competition existing between the various species on these plots; if the treatment, chemical or otherwise, establishes only a small difference in favour of one species as against another, then the pressure of competition acting over a long period may easily eliminate the one species or make the other dominant. In considering, therefore, the distribution of given plants, it thus becomes necessary to look for very small factors, and not expect any large special correlation of the chemical composition of plant and soil. The lecturer promised to discuss in the following lecture such correlations as could be made out.

HORTICULTURAL CLUB.

ANNUAL DINNER.

THE annual meeting and dinner were held in the Hotel Windsor, on Tuesday, the 22nd inst., under the presidency of Sir John T. D. Llewellyn, Bart., about a hundred members and guests being present, including ladies.

Thanks to the kindness of Messrs. Jas. Veitch & Sons, the tables were beautifully decorated with flowers. A special group of Rhododendrons was placed in front of the President, as a graceful tribute, for he is a great collector and cultivator of these plants.

Mr. W. J. Jefferies proposed the toast of the Royal Horticultural Society, to which Sir Albert Rollitt responded in his usual terse and humorous fashion, provoking much hilarity by the anecdotes, intermingled with apt remarks as to the importance of the Society and its value to the world as a horticultural institution. References were made to the proposed great international horticultural exhibition of 1912, and the hospitality the Club hopes to extend to the foreign guests.

Sir John Llewellyn proposed the toast of the Club, and the Rev. Joseph Jacob responded with much humour. He made some references to the curious combination of military and horticultural ideas which has resulted in a notorious public appointment in connection with the London Parks. Mr. George Monro proposed "The Chairman," and Mr. Edward White "The Visitors." Mr. Smith, a Canadian guest, responded to the latter toast.

Prior to the dinner the annual meeting of the Club members was held. A very satisfactory report was given, showing a material increase in the membership, and a financial position which leaves nothing to be desired. Particular attention was directed in the report to the interesting and educational character of the lectures which had been given after the monthly dinner during the session. The Club in this way combines usefulness with sociability.

ROYAL METEOROLOGICAL.

FEBRUARY 16.—The monthly meeting of this society was held at the Institution of Civil Engineers, Westminster, Mr. H. Mellish, president, in the chair.

Mr. E. Mawley presented his report on the phenological observations for 1909. During the whole year wild plants came into blossom behind their usual time, the departures from the average being greatest in March and April. Such early spring immigrants as the swallow, cuckoo, and nightingale made their appearance rather earlier than usual. The only deficient farm crops were Beans, Peas, and Hay. On the other hand, the yield of Wheat, Barley, Oats, Turnips, Mangolds, and Potatoes was well above the average, and more particularly Barley and Turnips. The crop of Apples, Pears, and Plums was under average; whereas that of Raspberries, Gooseberries, Currants, and Strawberries, taken together, was fairly good. As regards the farm crops, this was the fourth year in succession in which the yield has been above average.

Colonel H. E. Rawson read a paper on "The North Atlantic Anticyclone."

DEBATING SOCIETIES.

GUILDFORD AND DISTRICT GARDENERS'.—Mr. H. Tann presided over a large attendance of the members at the meeting held on Tuesday, the 15th inst. Dr. W. Goodwin, of Wye College, delivered a lecture on "Potash Manures." He described some of these manures, including wood-ashes, kainit, and sulphate of potash, and gave full directions regarding the proper time to apply the same, and the right quantities to use. The annual summer show is fixed for Wednesday, July 13.

BRITISH GARDENERS' ASSOCIATION (LONDON BRANCH).—At the last meeting of this association the question of a dust-proof carriage drive formed the subject of an interesting discussion. One member suggested that wood blocks would prove the most serviceable, but it was considered that preparations of gas tar have given the best results. A thick layer of broken granite is consolidated by means of a steam roller, and the surface is then flooded with boiling tar and afterwards sprinkled with sand. Six members of the branch were placed in the first class at the recent examination by the Royal Horticultural Society, Mr. P. G. Butcher winning the Silver Medal. Thirty-two members have now obtained First-class Certificates in this examination, whilst the medal has been won three times and the Silver-gilt medal twice.

BATH GARDENERS'.—The usual fortnightly meeting was held on Monday, February 14, at the Foresters' Hall, Mr. T. Parrott presiding. "Improvements in Vegetables" was the subject of a lecture given by Mr. W. F. Giles, of Messrs. Sutton & Sons, Reading. More than 100 lantern slides were used to illustrate the lecturer's remarks.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending February 19, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—The general character of the weather was very rough and stormy, and over the greater part of the kingdom a certain amount of rain fell every day, some of the falls being heavy in the west and north. Thunder and lightning were experienced on one or more days over a wide area.

The temperature was above the average, the excess ranging from about 1° in Ireland to about 5° in England E. and the Midland Counties. Over the kingdom as a whole the highest of the maxima occurred on the 17th, but in Scotland the date was rather variable. The figures ranged from 56° in England E., and also at Westminster and Greenwich to 52° in Scotland E. and W. The lowest of the minima were registered on the 16th at most places in Great Britain, but earlier in the week at some western and south-western stations and in Ireland. In Scotland E. (at Balmoral on the 15th) the thermometer fell to 18°, and in England E. to 22°, but in the other districts the values ranged from 26° in Scotland N. to 31° in England N. and N.W., and to 37° in the English Channel. The lowest grass readings reported were 14° at Balmoral, 18° at Cambridge, 20° at Crathes, 22° at Westminster and Llangamarch Wells, and 23° at Hereford.

The mean temperature of the sea.—On the south-east and south-west coasts of England the temperature of the water was higher than during the corresponding week of last year, elsewhere it was generally lower. The means for the week ranged from about 48° at Newquay and Plymouth to 40° at Kirkwall and Cromarty, and to 38° at Burnmouth.

The rainfall was considerably more than the average in all districts excepting England N.E., where the excess was slight.

The bright sunshine was just equal to the normal in Ireland S. but exceeded it in all other parts of the Kingdom. The percentage of the possible duration ranged from 42 in Scotland E., 41 in England N.E., and 40 in the Midland Counties to 30 in England S.E., 28 in Scotland N., and 27 in Ireland S.

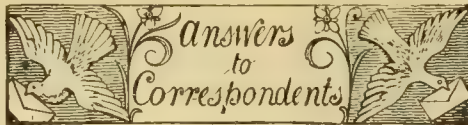
THE WEATHER IN WEST HERTS.

Week ending February 23.

A warm, wet, and windy week.—Since the month began there have been only two unseasonably cold days, and but five cold nights. On the first day of the past week the temperature in the thermometer screen rose to 55°—the highest reading of the year as yet. The nights also were, as a rule, unseasonably warm for the time of year. The ground is now 2° warmer than is seasonable, both at 1 and 2 feet deep. During the present month there have been as yet only four days without rain, but as a rule the amounts deposited have been small. Rain fell on each day of the past week, and to the total depth of 1½ inches. Between 8 and 9 p.m. on the 20th there occurred a short but severe thunderstorm which passed directly over Berkhamsted. As was the case in the previous week, practically the whole of the rainfall came through the percolation gauges. The sun shone on an average for 2½ hours a day, which is about the mean duration for the third week in February. The wind was variable in strength, but as a rule high, and at times very high. On the 20th the velocity of the wind amounted to that of a gale. During the three hours ending 4 p.m. on that day the mean velocity reached 24 miles an hour, and in the windiest hour 25 miles—direction S.S.E. There was about a seasonable amount of moisture in the air at 3 o'clock in the afternoon. A selected bush of the wild Hazel first showed a female flower on the 19th, which is one day earlier than its average date for the previous 19 years. E. M., Berkhamsted, February 23, 1910.

ENQUIRY.

APPLE CORDONS.—I propose planting some Apple cordons in the open, and should be much obliged if any reader would kindly tell me which way I ought to place their heads—north, south, east or west—and their reason for so planting them? *Amateur Orchardist.*



BOOK ON CARNATIONS: C. You will find all the particulars you require in *The Perpetual Flowering Carnation*, by Montagu G. Allwood. This work may be obtained from our publishing department, price 2s. 3d. free by post.

GARDENING PROSPECTS IN AMERICA: C. M. and others.—Several correspondents have written, asking for further particulars with regard to gardening employment in the United States of America. We have no further information to add beyond what is contained in the letters published on p. 122. As it is contrary to the law of that country for anyone to advertise for a situation, unless he already resides in America, the only course open is to proceed there and seek work on the spot. According to our correspondent, T. E. R., there is no difficulty in obtaining a situation. His advice to freshly-landed emigrants to seek the help of some prominent seedsmen or nurserymen is to be recommended.

HERBACEOUS PERENNIALS: C. P. Hardy herbaceous perennials include such plants as Montbretias and the hardy Lilliums, notwithstanding they have bulbous root-stocks. Therefore, unless bulbs are expressly excluded by the conditions of the schedule, it would be legitimate to show these as hardy herbaceous perennials. Some of the plants you mention might not be considered perfectly hardy, and in that case their inclusion might lead to disqualification.

MANURE FOR HARDY PALMS: W. E. It will be beneficial to apply a dressing of well-rotted manure as a mulch in the spring. This should be raked off in the autumn and replaced with manure containing plenty of strawy litter.

NAMES OF PLANTS: *Anxious.* 1. *Aloe variegata* (Partridge-crest Aloe); 2. *Daphne Laureola*; 3. *Aloe verrucosa*; 4. *Sparmannia africana*.—*D. M.* The specimens are very poorly developed. 1. *Bulbophyllum Pechei*; 2. *Cirrhopetalum picturatum*; 3. *Odontoglossum luteo-purpureum*, so far as we can judge.—*Pottle.* *Begonia maculata*; 2. *B. manicata*; 3. *B. metallica*.—*R. H.* 1. *Odontoglossum blandum*; 2. *Oncidium pubes*; 3. *O. flexuosum*; 4. *Ada aurantiaca*; 5. *Stelis ophioglossoides*.—*H. H.* *Cornus Mas* and *Hypericum Androsæmum*.—*B. G.* *Begonia glaucophylla* of gardens. A fine basket plant.—*E. M.* 1. *Cymbidium giganteum*; 2. *Cypripedium Madiotianum* (*villosum* × *Chamberlainianum*); 3. *C. Lathamianum* (*villosum* × *Spicerianum*).—*G. A.* *Ceanothus azureus*, as far as we can tell without flowers.

PRUNING FOREST TREES: *Subscriber.* If you intend pruning and lopping the trees you mention severely, the work may be done now. But the ordinary pruning, such as merely thinning the branches and shaping the trees, is best done during the summer months. This time is recommended because the foliage being then on the trees, the effect of the pruning can be observed as the work proceeds.

RETARDING PLANTS: *Retard.* You will find particulars for the treatment of retarded crowns of Lily-of-the-Valley in the issue for February 22, 1902, p. 124. In the issues for March 8 and March 15, 1902, details are given respecting the treatment of retarded plants of *Spiræa*, *Lilium* and *Rhododendron molle*.

RHODODENDRON SHOOTS DAMAGED: G. G. The damage to your shoots of *Rhododendron grande* has been caused by frost. There is no disease present.

SAND FOR EXAMINATION: W. F. We do not undertake to analyse soils. If you send the sand to Dr. A. Voelcker, M.A., 22, Tudor Street, E.C., he will undertake an analysis for a fee, which is reduced to Fellows of the Royal Horticultural Society.

STREET TREES: *Chester.* The following kinds are suitable for planting in streets of urban districts:—*Ulmus campestris*, *Robinia Pseud-acacia*, *Pyrus Aria*, *Populus nigra pyramidalis*,

Acer dasycarpum, *A. platanoides*, *Æsculus rubicunda*, *Catalpa bignonioides*, *Fagus sylvatica*, *Fraxinus americana aucubæfolia*, *F. excelsior*, *Platanus orientalis var. acerifolia*, and *Populus deltoides*.

TO REPAIR AN ASPHALT PATH: G. F. As your paths are badly cracked, it will be necessary to remove, with a pickaxe, about 6 inches on either side of the cracked surface, or, say, about 9 inches altogether, and fill in with fresh material. If the paths are not extensive we should advise you to relay them entirely. The trouble has arisen from a neglect to form a proper foundation. If you adopt our suggestion, pick up the path and break the material into small portions, utilising these for the bottom. If you employ this old material, all that is necessary is to well roll or consolidate it with a rammer, and then apply a light layer of finer, newly-made asphalt. Full particulars for the making of asphalt paths are given by Mr. W. W. Pettigrew in the issue for July 17, 1909, p. 39. Mr. Pettigrew states that finely-broken limestone is employed in the public parks at Cardiff, but we have seen miles of excellent asphalt paths made with ordinary beach stones. These are sifted, the finer ones being used for the surface. The stones, either small or large, are placed in heaps and burned with coke like ballast. They are then mixed, when hot, with boiling tar, and all that is necessary is to spread them evenly and roll well. The surface is afterwards heavily dusted with road-grit. The details of Mr. Pettigrew's system are as follow:—The gravel—a finely-broken limestone—is passed through a ½-inch screen, and the separated rough and fine gravel are kept in distinct heaps till required. To ensure success in mixing it with the tar, it is essential for the gravel to be thoroughly dry, and with this object in view it is, if practicable, advisable to have it stored and mixed under the cover of a shed. The tar must be applied to the gravel whilst the former material is at the boiling point, and for this reason a tar-boiler is an absolute necessity for carrying on this work. The boiling of tar, if not properly attended to, is not merely a difficult but a very dangerous process, for it may run over the sides and reach the furnace. By placing a piece of slack lime, about the size of a large hen-egg, into a boiler containing about 20 gallons of tar, just as it reaches the boiling point, the ammonia is set free and all danger of boiling over is obviated. We find that a cubic yard of fine gravel takes about 17 gallons of tar, while the rough only takes about 11 gallons. The gravel is turned over and stirred about while the boiling tar is being poured over it until it is thoroughly and evenly mixed, after which it is stored in a large heap until required for use. It is found to be an advantage to keep it stacked in this way for a few days rather than to take it out fresh and use it at once. In the latter case the tar is liable to exude from the surface and cause annoyance, whereas in the former it does not do this. The path over which this mixture is to be laid must first of all be "picked" up, remade, and lightly rolled. The rough, tarred gravel is then spread over it in a layer about ½ inch in thickness and compressed together by means of a heavy roller. Fine gravel is thereafter laid for a depth of 2 inches over this, levelled with a steel rake and then thoroughly rolled and the surface covered with sand or fine limestone grit. By the constant application of a wet mop to the surface of the roller the tarred gravel does not adhere to it, and an even, smooth surface is given to the walk.

VIOLETS UNSATISFACTORY: *Single W.* The trouble is not caused either by disease or insect pest. The flowers have become abnormally double, and some of the petals have become foliaceous and irregular in shape. It is difficult to account for the abnormality, but it is perhaps due to rich soil, and high culture generally. We should advise you to discard the plants and to procure fresh stock.

Communications Received.—B. H.—H. H.—E. N.—A. G. B.—B. G.—Egham Gard. Assoc.—Wargrave Gard. Assoc.—A. A. P.—G. H.—R. D.—W. R.—W. S. B.—A. & B.—W. F.—John D.—W. W. P.—J. C., Geneva—E. K.—A. G.—E. A. D. W.—J. O'B.—J. F.—Chloris—H. S.—F. M.—E. H. J.—A. H.—G. P. D.—S. A.—F. J. C.—Thomas, E., Shanghai—W. W.—Haddam—A. Grove—F. S. L.—Royal Agricultural Soc.—Linnean Soc.—T. B. D. & Co.—H. H. D.—G. W.—C. B. L.—P. M.—A. B., Lyons—H. S. T.—R. F.—S. & S.—W. H.—T. H. C.



GENTIANA SCABRA.

FLOWERS, BRIGHT PURPLISH-BLUE, PALER IN THE THROAT. FROM SPECIMENS SUPPLIED BY MR. AMO'S PERRY.



THE Gardeners' Chronicle

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NOTES FROM LA MORTOLA.

TO escape from the glare and dust of the high road leading from Ventimiglia to Mentone into the cool shade of the luxuriant vegetation of the gardens of La Mortola gives a delightful sense of relief and quiet.

Once inside, it is difficult to realise that it is only February. The first thing that meets the eye is a large clump of scarlet cotyledon macranthum in full flower, and as you pass down the steps, Salvias (S. mexicana, elegans, &c.), Heliotropes, Acacias, Daturas, not to mention many succulents in flower, form bright spots of colour among the more subdued shades of blues and greens of a large variety of dry-climate plants, and the dark masses of evergreen trees. The rampant growth of old friends which in British green-houses are, even at their best, but poor, meagre specimens compared with those here, growing in the open and under much more natural conditions, is enough to fill one with envy.

It would be difficult to find a more ideal spot for a winter and spring garden, situated as it is on a tongue of land, facing south, and

sloping rather abruptly from the road, which lies some hundreds of feet up, right down to the shores of the Mediterranean, with extensive views along the coast on either side. The upper part of the garden is in the form of terraces, with zig-zag paths leading down to the house. These terraces formerly grew vines, Olives, Lemons, Oranges, &c., but now the more exposed parts are occupied by a splendid collection of dry-climate plants, such as varieties of Mammillaria, Echeveria, Cotyledon, Opuntia, Crassula, Cereus, Mesembryanthemum, Aloë, Euphorbia, Kleinia, &c. It would be endless to enumerate them. They range from the extremely small Haworthias to the gigantic Agaves, of which the silver A. Franzosinii, a hybrid, is perhaps the most conspicuous, almost white in colour, very glaucous, standing 7 to 8 feet, and with leaves 5 to 6 feet long. Several Dasylirion have flowered, amongst them D. acrotrichum and the glaucous form, D. glaucophyllum (as its name implies) is still in bloom, the inflorescence being about 10 feet: a magnificent specimen.

Of the succulents in flower, space does not permit of reference to more than a few. There is a great assortment of Aloës, with branched flower-stems, ranging in size from A. lortiococcinea, with an inflorescence about the size of a fine Lachenalia, through the different grades of A. ferox (with formidable spines), A. supralævis, to the largest A. Salm-Dyckiana, with flower-heads which look in the distance like huge, loose Kniphofias, though the unbranched flower-stems of A. ciliaris and A. arborescens frutescens, and its larger variety A. arborescens Pachythyrsa are perhaps more beautiful. One would imagine that such plants as succulents and the Acacias must revel in the intense heat of the summer sun on those steep terraces. I am told that the dry season sometimes lasts eight months.

It is difficult, unless they are in flower, to distinguish between the Alcô and the Agave. But once in flower, the matter is easy, as the Aloë belongs to the Liliaceæ, and the Agave to the Amaryllidaceæ. Another point of difference is that the Aloë flowers every year and has a branching habit, whereas the Agave flowers only once and then dies. The supreme effort of throwing up its immense flower-heads, which form such a conspicuous feature in the landscape of the Riviera, seems to be too much for the constitution of the plant. The popular idea is that the Agave lives 100 years and then flowers and dies, but, as a matter of fact, under natural conditions they mostly flower at a much earlier age. The Mexicans make a strong alcoholic drink from the sap of the common Agave americana, which they obtain by cutting and tapping the stem of the young inflorescence. One plant is said to be capable of supplying 1,000 litres of sap.

The pithy tissue of the axis of the mature inflorescence, if cut into boards about 1 centimetre thick, is considered by some to be preferable to cork for lining entomological boxes, as small pins penetrate the Agave tissue much more easily.

The fibres extracted from the leaves are of use for cordage, the leaves are used locally for palings or hedges, and as the plants grow mostly on the driest, sunniest spots, they form excellent substitutes for clothes lines, the

clothes being stretched out on them to dry by the Riviera washerwoman.

But to return to La Mortola. The soil is calcareous and light in colour, and lime-shy plants require to have the ground especially prepared for them.

Before leaving the Aloës, I must mention one which especially attracted my notice, on account of its beautiful colouring. To judge from its name, Aloë rubro-violacea, one would imagine the colouring to be rather crude and vivid, but this is not the case. In its rosettes of leaves, each leaf being about 1½ feet long, there are pale shades of green at the base, gradually passing into pink purple and blue, the whole being covered with a delicate bloom. The flower-head, which is massive, stands about 2 feet to 2½ feet high, with the stem of the same colouring as the leaves. The flowers are a pleasing cherry-red. In bright sunshine this Aloë is a plant of great beauty.

The above-mentioned Agaves and Aloës, the revolting-looking Euphorbia Caput Medusæ, trailing over the rocks, the candelabra Euphorbias of all sizes and shapes, the bristling Mamillarias and Opuntias, the hanging masses of Mesembryanthemums, are not easily overlooked, but woe betide anybody who touches them! Among the less-conspicuous varieties of succulents there is matter for months of study to the would-be connoisseur in dry-climate plants.

In spite of their great interest, however, the place would be dull if not relieved by other less abnormal forms of vegetation. Pools containing water plants, overhung by Ferns, and shaded by groups of larger trees are met with here and there. In one pool I found an Aponogeton distachyon in full flower. Near the entrance of the gardens a graceful Casuarina var. stricta hangs over the steps leading from one terrace to another, and further down a magnificent Buddleia madagascariensis forms a regular arbour. The plant seems to be a semi-climber, and either supports itself by intertwining its stems or finds support in some trees, and thence hangs its graceful pendulous, yellow-orange flower-heads and grey, glaucous leaves.

Palms and Cycads are scattered about among the different trees and flowering shrubs, and above all towers an immense Eucalyptus Globulus, with its clean stem stripped of its bark, scenting the air with its fragrant flowers, and with its leaves hanging edgewise to the sun, a special form of adaptation against excessive sun-heat. The reduction of the leaf surface from the wide, thin lamina of the leaves in the seedling and young plant, to the tough, narrow sickle-shaped leaves of the mature tree, together with the bloom on the leaves and fruit, are so many protective devices against excessive insolation.

The smaller-leaved Eucalyptus leucoxylen has a similar habit, but is not such an imposing tree as the common Eucalyptus Globulus.

The different varieties of Palms and Cycads are also a feature in the La Mortola Gardens. The commonest, Phoenix canariensis, is to be met with everywhere along the Riviera. At this time of year it is very ornamental, with its huge bunches of orange-yellow fruits. The more useful Phoenix dactylifera, or Date Palm, does not do so well; it does not mature its fruit, and the

leaves look as if they needed more warmth. A distinguishing feature about the Phoenix, beside its pinnate leaves, is the persistence of the leaf-bases all the way down the stem. In the Cocos, however, the leaf-bases fall off with the leaves, and the leaf scars run one into the other, so that a smooth stem, with annular markings, is produced. The leaf-bases of the *Chamærops* are also persistent, and the stipules are extremely hairy, giving the stem a fluffy appearance. The leaves of the *Chamærops* are, of course, palmate, and the clusters of fruit dark in colour.

The *Washingtonia* (W. Sonoræ in particular) has the peculiarity of having its leaf bases split

and the mature leaf, all stages of transition from one to the other occurring on the same plant. It seems rather strange that a plant with xerophytic characteristics should increase its leaf surface as it matures, from a narrow linear leaf with no spines, to a very broad, much-indented, thorny one, instead of reducing it, as is more usually the case.

The base of the mature leaf of the *H. cucullata* is yellow, tinged with orange, and the colour gradually shades off into green nearer the margin. The flower is insignificant, and hidden in the axil of the leaf.

On a sunny bank, facing S.S.W., is a collection



[Photograph by J. Gregory.]

FIG. 62.—CARNATION "MRS. TATTON": COLOUR OF PETALS LIGHT PINK, WITH WHITE MARGINS.

in two, just as if the strain of the increasing girth of the stem had ruptured the petiole near the stem.

Among the smaller shrubs the *Hakeas* and flowering *Grevilleas* are of some interest, in particular *Hakea cucullata*, with its extraordinarily-shaped leaves, and the dry, hard fruits lying in the axils close to the stem. The leaves are tough, leathery, and armed with spines, and there is an extraordinary difference between the seedling leaf

of small *Grevilleas*. The habit is graceful, and the racemose flower-heads, with two florets in each axil, and the long, projecting styles, give the plants a light, feathery appearance.

It is a pity these plants are not more grown in cool greenhouses in England. They flower when quite small, and are certainly more ornamental than *G. robusta*, the Australian silky oak, which is so much grown as a foliage plant. D. M. Cayley.

CARNATION MRS. TATTON.

At the Royal Horticultural Society's meeting held on February 22 a very distinct and pretty Carnation of the perpetual-flowering type was shown by Mr. H. Burnett, Guernsey. As was stated in our report, the colour of the petals of this variety is of the pleasing pink peculiarly characteristic of the *Souvenir de la Malmaison* section, such, for instance as the variety *Marmion*. The colour in the new variety is richest at the base of the petals, becoming paler until the margins are reached, these being nearly white. The petals are slightly fringed, as is shown in the illustration (fig. 62); but, in other respects, the flowers have excellent form, and are produced on long, erect stems. The variety *Mrs. Tatton* is a very desirable novelty.

NEW OR NOTEWORTHY PLANTS.

IRIS LISBONENSIS, SP. N.*

INABILITY to manufacture a euphonious adjective out of *Olisipo*, the ancient name of Lisbon, has led me to suggest the above somewhat mongrel title for an *Iris* which grows in the immediate vicinity of that city, and which has not been previously described, I believe.

This new species has come to light in the course of an attempt to straighten out the tangle that has long surrounded the Linnæan species *biflora* and *aphylla*. By the former, Linnæus may have meant to describe the Portuguese plant, which Clusius found near Coimbra, and called *biflora*, when he saw it in bloom in November, and heard that it also flowered in spring. Unfortunately, Linnæus confused matters by referring to a figure in the *Hortus Eystattensis* called *I. biflora*, which undoubtedly represents the Central European *I. aphylla*, and his herbarium in the possession of the Linnæan Society contains a similar plant, while *I. aphylla* is unrepresented. Owing to this confusion, it would seem necessary to drop the Linnæan name of *I. biflora*, and then Brotero's name of *subbiflora* (*Brotero Flora lusitanica*, I., p. 50, 1804) will stand for the Coimbra plant.

While going through the Portuguese specimens of this *Iris* in the Kew Herbarium I found one plant that differed from *I. subbiflora* in several ways, and which was collected on Monsanto. The chief difference lies in the fact that, whereas in *subbiflora* the stem bears several small bract-like leaves, and has small purple-stained spathes, the Monsanto plant has a naked stem, and remarkably long and broad, green spathe valves.

Not content to base a new species on this one specimen, I made enquiries in Portugal, and fortune favoured me; for it happened that my friend, the Baron de Soutellinho, formerly Mr. A. W. Tait, was able to send me a flowering specimen of what he believed to be *I. subbiflora*, gathered by his brother on Mont Estoril, a hill in close proximity to Monsanto, on the outskirts of Lisbon. This plant, however, turned out to be identical with the Kew specimen from Monsanto, and I heard also from Professor Henriques, of Coimbra, that he knows the plant from a herbarium specimen as growing with *Iris subbiflora* near Lisbon. Moreover, I find that a specimen was sent by Maw to Sir Michael Foster from the neighbourhood of Lisbon, and all these indications combine to show that the Kew specimen is no isolated abnormality, but really representative of a distinct species, which has hitherto remained unseparated from Brotero's *subbiflora*.

In this new *Iris* the leaves are of a somewhat

**IRIS LISBONENSIS*, SP. N.—*Rhizoma* carnosum, compactum; *folia* ensiformia, pallide luteo-viridia, caulem subæquantia; *caulis* simplex, nudus, uniflorus; *spatha* magna, 3-poll. longa, omnino virides, subventricosa; *pedicellus* nullus; *ovarium* rotundato-trigonum; *tubus* 1.2 poll. longus, purpureo striatus; *segmenta* omnia nigro-purpurea, exteriora obovato-cuneata, barbâ ex albido cærulescente, interiora paulo pallidiora, obovato-unguiculata.

yellowish green, about 8 in. long at flowering time by $\frac{3}{4}$ in. wide, the innermost pair almost hiding the bare stem. The spathes bear apparently one flower, and are $2\frac{1}{2}$ to 3 inches long, somewhat inflated, and quite green at flowering time. There is no pedicel, but the tube is from $1\frac{1}{2}$ to 2 inches long, greenish with purple stripes in the line of the standards. The falls are of a fine dark red, almost black, purple, the beard being bluish in front, then white tipped with blue, and finally at the base beneath the styles white inconspicuously tipped with brown or yellow. The standards are of a somewhat lighter shade than the falls, with darker veins, and narrow gradually to a haft, which is veined with red-brown on a colourless ground. *W. R. Dykes.*

IRIS MASIA.

THE new Iris described on p. 99 should be called *I. masia* and not *I. Masiae*, the name by which it was known to Sir Michael Foster; for, as Dr. Stapf has very kindly pointed out to me, the ancient name of its habitat, the Karadja Dag, was Mons Masins. Foster was evidently unaware of the origin of the name, which, in itself, contains further proof of the identity of the plant he received from Leichtlin with *Sin-tenis's* specimen in the Kew herbarium. *W. R. Dykes, Charterhouse, Godalming.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT ROSSLYN, STAMFORD HILL.

THE gardens of H. T. Pitt, Esq., are exceedingly interesting as an example of an old-time garden, established when Stoke Newington, Stamford Hill, and adjacent parts were yet country places, and had not become parts of London. In the gardens are many old trees, including *Catalpa bignonioides*, which is said to be one of the earliest planted in the neighbourhood of London, a district which suits it admirably. The plant-houses are noted for a very fine collection of Orchids, especially the finely-blotched forms of *Odontoglossum crispum*, a branch of Orchid culture which Mr. Pitt has encouraged liberally, many of the best forms having been purchased for the Rosslyn collection. Of these, the two favourites in the collection are *O. crispum Pittianum*, which is very remarkable for size and depth of colour, and *O. c. Persimmon*, a flower of broad proportions and fine substance. There are several specimens of most of the distinct forms, for the practice has been to remove the old pseudo-bulbs and keep them dry on a shelf until they begin to grow, when they are potted up. A plant of *O. crispum Pittianum* obtained from not very promising back pseudo-bulbs, but now growing strongly, affords a good example of the value of the process.

Of late years, Mr. Thurgood, Mr. Pitt's gardener, has turned these fine blotched *Odontoglossums* to another account, by using them for hybridising, and several houses contain large batches of plants, ranging from 2 inches in height to sturdy specimens, some of which will soon flower. These include crosses with *Odontoglossum Edwardii*, *Cochlidia Noezliana*, spotted and finely-formed varieties of *Odontoglossum Pescatorei*, and other *Odontoglossums* crossed with *Odontoglossum crispum Pittianum*, *O. c. Ashworthianum*, and other deeply-coloured varieties. It is remarkable that such quantities of seedling *Odontoglossums*, which a few years ago were considered to be next to impossible to raise and rear in this country, should be thriving so well, practically in London. Some crosses are said to do better than others, the *O. Edwardii* crosses growing better than some, which, being crosses of a nearer affinity, might be expected to succeed better than such wide crosses as those with the purple *O. Edwardii*.

To take a brief note of the contents of the houses: the first compact span-roofed range is filled with a fine lot of hybrid *Cattleyas*, *Lælio-Cattleyas*, and *Brasso-Cattleyas*, all raised at Rosslyn, and now strong plants, of uniform size.

The next range is a lean-to house, in three divisions, containing many rare species and some hybrids. In one corner are several good specimens of *Chondrorhyncha Chestertonii*, which thrive well, and are rarely without one or more flowers every day in the year. Beside them is a plant obtained by crossing *Chondropetalum Fletcheri*, with *C. Chestertonii*, which, it is hoped, may produce a flower with a distinctly fringed lip. A batch of *Epidendrum Boundii* × *E. Wallisii* should be interesting; *Cœlogyne pandurata* grows well in this warm, moist house, and is freely propagated. In one corner a batch of *Cypripedium Mastersianum* has many flowers; and a few hybrids are in bloom, together with strong plants of *C. Earl of Tankerville*, *C. Hindenium*, *C. Ajax* (a very large bloom), *C. Baron Schröder* var. *ardens*, *C. Our King*, &c.

The next division has hybrids on the front stage, and *Aërides*, *Vandas*, and *Saccolabiums* on the other side, the adjoining house having a good show of *Dendrobiums* in flower, including *D. Roeblingianum*, varieties of *D. splendidissimum*, *D. Sibyl*, *D. Wiganiae*, *D. nobile*, *D. Juno*, *D. Melanodiscus*, &c.

Here also is a good collection of *Lælia anceps* varieties, and an interesting series of botanical Orchids, which are favourites with Mr. Pitt. are suspended from the roof, those noted being *Bulbophyllum rufinum*, with sprays of reddish-yellow flowers; *B. barbigerrum*, *B. Ericssonii*, and some other *Bulbophyllums*. The *Odontoglossum* range has in bloom a few very good *O. crispum*, *O. Pescatorei*, *O. ardentissimum*, and some of the smaller species, together with that useful brightener of the cool houses, *Sophronis grandiflora*; and in the next division *Odontoglossum* hybrids; the third division having a goodly number approaching the flowering stage.

The next intermediate house range has in flower several plants of *Odontoglossum pulchellum majus* of the best old form; some *O. Rossii* and *O. Cervantesii*, the orange-scarlet *Ada aurantiaca*; several *Cymbidiums*, including *C. Lowgrinum* (*Lowianum* × *tigrinum*) raised at Rosslyn, and a much handsomer plant than the original.

In the next and warmer division several plants of *Epidendrum Wallisii* and hybrids of it are in bloom; also *E. polybulbon* in two varieties, *Cœlia macrostachya*, *Oncidium cheiroporum* and other *Oncidiums*, some good *Lycaste Skinneri*, *Cochlidia Noezliana*, bearing both flowers and seed-capsules, several plants of *Maxillaria luteo-alba grandiflora*.

A still warmer division has several good *Cypripediums* in bloom, and among interesting species in flower several *Eulophia virens* and *E. pulchra*, similar in growth but with very different flowers, those of *E. pulchra* having very pretty purple-veined labellums.

The large span-roofed intermediate house contains an arrangement on the centre stage of plants in bloom, made up of various *Cattleyas*, with a few *Lælio-Cattleyas*, good specimens of *Platyclinis glumacea*, white *Cœlogyne cristata*, &c., the long spikes of *Lælia superbiens*, and its hybrid, *L.-C. Choletiana* arching over from the back, *Aërides Vindarum*. A fine lot of *Dendrobium Wardianum*, and *D. crassinode* are also in bloom, and among the plants noted were some strong hybrid *Sobralias*, the fine white *Cattleya Hardyana* Countess of Derby, and a uniformly pink-tinted form of *C. Warszewiczii*.

Another span-roofed house contains *Odontoglossums*, some few being in flower. Overhead are nicely-flowered *Dendrobium Kingianum* and *album*, *Oncidium cucullatum*, &c.; the next divi-

sion is filled with selected varieties of *Cypripedium insigne*, together with some hybrid forms, including *C. Beekmannii* and hybrids of it.

The old Pine-pit is another link with the gardening of a past age, and in the early days of Mr. Pitt's possession he retained the tan-beds and grew some very fine Pines there, but later the beds were removed, and on the place where they were *Eucharis* are grown and flower profusely. From the roof are suspended *Dendrobium Phalaenopsis* and other of the warm house *Dendrobiums*, *Phalaenopsis*, principally *P. Schilleriana*, are suspended from the roof and arranged on the back shelf. In bloom in the house is the very pretty *Cypripedium Grace Pitt* (*niveum* × *Leeanum virginale*), a wax-like, pure white flower, with a flush of rose on the petals and some fine dotted lines on the dorsal sepal, which has a greenish base.

NOTICES OF BOOKS.

CULTURE OF MUSHROOMS.*

FUNGI abounds in all regions, excepting the Arctic and Antarctic, but in only a few cases are there any artificial methods of cultivating them. In this country we eat the common Mushroom—*Agaricus campestris*, the Champignon or Scott's Bonnet, *Marasmius oreades*; the Horse Mushroom, *Agaricus arvensis*; the Giant Puffball, *Lycoperdon giganteum*; the Maned *Agaric*, *Coprinus comatus*; the Plum Mushroom, *Agaricus prunulus*; and a few others; but the first-named is the only species which we grow artificially. Abroad, the suspicion attaching to species other than those named is much less marked. The Italians, by keeping moist the stumps of the common Willow, obtain a delicious fungus; and the Jew's ear fungus is considered a great delicacy. Truffles, both black and white, are grown under a rough method of cultivation, but, as a rule, both here and abroad, edible fungi are to be found growing spontaneously in certain soils and localities, and are not cultivated.

Although handbooks on Mushroom cultivation are plentiful, there is still room for others, and Mr. Sanders fills a special nook, seeing that he gives descriptions of a number of fungi that are agreeable additions to the table and most of them readily recognisable. Mr. Sanders has written this manual chiefly for the amateur growing for home consumption, and with this intent he gives concise and lucid directions as regards the various modes of procedure.

A part of the handbook consists of directions for the preparation and cooking of Mushrooms.

HARDY FRUIT CULTURE FOR AMATEURS.†

As the authors state in the preface, "there have been frequent complaints that most of the books relating to hardy fruit cultivation are so expensive as to be beyond the means of many amateurs, and that much of the matter contained therein is too elaborate or too technical for their understanding." In this handbook an endeavour has been made to deal with each subject in a plain, brief manner.

The gardener by profession is often outstripped by the amateur, for the reason that he is unable, owing to lack of time, to devote his attention to fruit culture to the same degree as the amateur. Provided that the soil of the amateur's garden is fairly fertile, there is scarcely a hardy fruit he may not produce at its best; and that being the case, he is enabled to grow all that he needs for his own consumption, and has good fruit for disposal in the market. Inasmuch as the author is an experienced fruit cultivator, his recommendations as to varieties and methods are perfectly trustworthy. The pests of fruit trees and

* *Mushrooms and Their Cultivation*, by T. W. Sanders, F.L.S. (London: W. B. & N. Colnaghe) 1s. 4d.

† By S. T. Wright, with notes by W. D. Drury, F.E.S., on *Fungi Affecting Fruit Trees*. Illustrated, 3rd edition. (London: L. Upcott Gill.) Price 1s. net.

bushes, both insectivorous and fungal, come in for full notice, as do the protective methods to be employed against frost at blossoming time. He seems, however, to have omitted the old-fashioned though efficient method of covering wall trees thinly with Spruce-tree branches, which lose their needles gradually as the season advances.

The lists of the various kinds of fruit are really selections, and very good ones, not erring on the side of multiplicity.

GARDENING DIFFICULTIES.*

IF every amateur, and, for that matter, almost every gardener and under-gardener possessed a copy of this book, most of their problems would be happily solved.

The Rose occupies 38 pages. The questions and answers apply to numerous matters concerning Roses—their planting, pruning, general treatment, selection of varieties, fungus and insect foes. In every instance we find that the answers given are correct and to the point. They touch upon Roses in the open, in the glasshouse, on walls, fences, for half-shady positions, for pergolas, &c. Then come those very popular plants—the perpetual-flowering or winter-flowering Carnations, an ever-increasing multitude. These, and the border varieties, are treated in a similar manner, but less fully than the Rose. Of course, the Sweet Pea comes in for many replies and hints, as to what are the best manures, what causes the flower-buds to fall, how to grow Roses in pots, the cause of Pea mould on the roots, &c. This chapter is followed by one on the flower garden and its trials and troubles, a mass of miscellaneous matters satisfactorily dealt with by the editor. A good list is that of 40 Cactus Dahlias, and useful notes are given on the reason why Violas fail in some places, and in praise of the garden frame.

Chapter v., "The Greenhouse Gay," affords capital hints for the amateur who, in greenhouse culture, is apt to go astray. We think that more varieties should have been added to the lists, especially of fragrant-leaved Cape Pelargoniums. There are useful paragraphs on the culture of Chrysanthemums, both indoors and out, bud-taking, how to deal with the leaf-miner, and the rust plague. Grape culture in the greenhouse, methods of planting vines, pruning, training and treatment of vines during summer, and a number of other fruit-growing problems are dealt with. F.

THE ROSARY.

FORCING HOUSE FOR ROSES.

IN the issue for September 19, 1908, p. 212, I gave details, with sectional drawing, of a cool house for growing Roses planted out in borders. I propose now to describe a good type of house for forcing Roses in pots. The best house for this purpose is a three-quarter-span structure, and we may consider one 50 feet long, with a width of 18 feet 3 inches. The house should be divided into two parts, one measuring 23 feet 3 inches long for the forcing and propagation of the plants, and the other as a cool house. In the warmer part, which is shown in sectional elevation in fig. 63, there are three flow and three return 4-inch hot-water pipes. In the cooler division, which is 27 feet long, only two flow and two return pipes of the same diameter are necessary. The roof rafters are 2 feet 1½ inches apart, and the sash bars 1 foot apart, 21-ounce glass being employed. Four posts are required to support the ridge, and the same number to carry the purlin. The house should run from north to south, in order to present the largest area of glass surface to the sunlight. Both top and bottom ventilation is amply provided for, there being four top ven-

tilators (see fig. 63), opening from the ridge, each measuring 3 feet by 2 feet, front glass ventilators (B), each 2 feet by 15 inches, and ventilating boards (A) both back and front, each 1 foot wide. These ventilating boards are useful when the weather is very cold, as the fresh air that is admitted by means of these first passes over the hot-water pipes. In the cooler division, the plants are placed when first brought indoors from the open or from cold frames to be accommodated later in the warmer division. The cold end is also useful for staging the grafted plants prior to hardening them after taking them from the warmer division, and for prolonging the season of blooming. The side stages (C) and propagating frames (E) can be removed about May, when forcing is finished. The house could then be utilised for growing Tomatoes, and later, for Chrysanthemums. In the cooler division, the four roof-supporting posts should be planted with a climbing variety each: Grus on Teplitz, Belle Lyonnaise, Kaiserin Augusta Victoria, Mrs. W. J. Grant, or La Marque being suitable. J. D. G.

ROSES OF RECENT INTRODUCTION.

PERHAPS I may be permitted to add to the admirable list of new Roses, given on pp. 130 and 131, the following varieties, namely, Margaret, Cynthia, and Althea, three highly-attractive Hybrid Teas, from Waltham Cross, of which

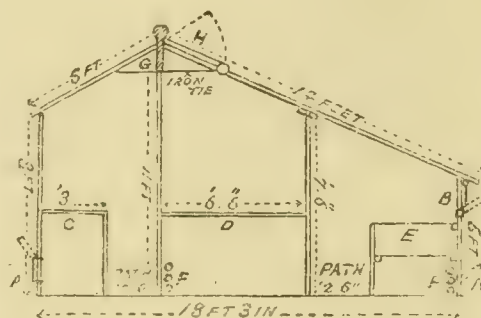


FIG. 63. SECTION OF A FORCING-HOUSE FOR ROSES.

- A. Ventilating boards, 1 ft. wide.
- B. Glass ventilators, 2 ft. x 1 ft. 3 in.
- C. Slate-covered stage, 3 ft. wide.
- D. Central stage.
- E. Propagating bed with movable glass frames each 3 ft. 6 in. x 2 ft. 6 in.
- F, F. Hot-water pipes.
- G. Ridge board.
- H. Ventilators, 3 ft. x 2 ft.

the first-mentioned (delicate pink in colour) is especially beautiful; Mary Countess of Ilchester, and Margaret Molyneux, from the Royal Nurseries, Newtownards, both of which, by reason of their distinctive colour and fine formation, are certain to prove great acquisitions; and Cynthia Forde, sent out by Mr. Hugh Dickson, of Belmont, near Belfast, a flower which greatly resembles a pink Camellia. Dorothy Dennison is a sport from that exceedingly popular Wichuraiana Rose Dorothy Perkins, and is shell-pink in colour, and highly effective. If grown side by side with Christian Curle (soft salmon-pink in colour) and the white Dorothy, the artistic effect, I imagine, would be very fine. Among other new Roses of great attractiveness are Theresa, named after the Marchioness of Londonderry; Duchess of Wellington, a richly-decorative variety; Walter Speed; and Nita Weldon. David R. Williamson.

NOTES ON VARIETIES.

DURING the past four or five years there have been introduced several Roses that stand out from all others. Those I propose mentioning now are not so generally known as they deserve to be.

AEENNCHEN MULLER (1907).—I do not know of a Polyantha Rose more constantly in flower than this variety, or one that lasts longer. The trusses are very large, and the whole plant appears to be one mass of clear, bright rose colour.

This does not fade in the sun, and the blooms have never failed to come good with us under glass. The petals are reflexed, and quilled, much after the manner of Cactus Dahlias. Its habit fits this variety peculiarly for bedding purposes.

CHIN-CHIN (1909).—This is a yellow China Rose that retains its deep primrose-yellow colour fresh until the last. Many of the yellow flowers pale with age; but, although this is not a deep yellow, it is clear and constant. As a bedding Rose it will be invaluable.

ARETHUSA (1903).—This is another yellow Rose of great usefulness. There is a shade of Apricot in the flower, which makes it a less clear yellow than Chin-Chin. The newer variety is a sport from Comtesse du Cazla, and there are few better Roses for massing.

AMERICAN PILLAR (1909).—This variety will assuredly be one of our most valuable single Roses. The flowers are a charming shade of pink, with a white eye and very prominent yellow stamens. The individual blossoms are often 3 inches across, and they are produced in large clusters, followed by showy hips.

HUGH DICKSON (1904).—There is little doubt but that this Rose is one of the very best deep crimson hybrid perpetuals. Its behaviour in the last five varying seasons has been excellent. It is a bold, sweet-scented flower, and the plants have a free-blooming habit. Practical.

(To be continued.)

LATE DESSERT APPLES.

I HAVE recently had the opportunity to inspect a number of the dessert Apples, through the kindness of Messrs. Bunyard & Co., and, in a season when these fruits have kept none too well, a note as to some of the best keepers may be interesting. I shall only mention a limited number of the best at this season, including some of the newer varieties, such as Sanspareil and Barnack Beauty. These may not be equal in flavour to others, but their good cropping qualities, appearance, and good keeping are strong points, and the fruits are of perfect form. Most of these late dessert fruits succeed as bushes or pyramids on the Paradise stock, and several of the varieties I shall name are valuable grown as cordons. At the same time, I may add that for many years I have noted that certain varieties resent the use of the pruning knife too freely; I mean that the shaped bushes one so frequently sees in the kitchen garden are not the best croppers. Here is a difficulty; space and appearance have to be considered, but a medium course can be adopted, as root-pruning will prevent excessive growth and timely thinning out (not cutting back too hard) will then give a much better return than severe head-pruning.

There can be no question but that, in places where good Apples are required in considerable quantities and the space in the kitchen garden is limited, it is desirable to devote a piece of land specially to fruit culture elsewhere, where proper space for development may be given the trees. During late years many gardeners have adopted this plan, with great advantage. In gardens limited as regards space, the plan is not always possible, but in such places other modes of culture must be specially selected to meet the circumstances. Some of the varieties named do splendidly as cordons, and these trees may be made profitable even on low walls or spaces often left vacant. This mode of culture should find more favour in gardens where varieties do not always give the best results unless the most favourable conditions can be given them. Cordon trees succeed well on fences, wires, or other supports, but for such purposes the cultivator must not select strong-growing varieties; only the small or medium-habited dessert kinds are suitable.

ADAMS'S PEARMAN.—This is an old Apple, but still one of the best mid-winter varieties. Being a medium grower, it forms a neat garden tree.

* *Gardening Difficulties Solved*, edited by H. H. Thomas. Expert answers to amateurs' questions. (Cassell & Co., Ltd.) Price 1s., or in cloth 1s. 6d. net.

The fruits are of first-rate quality, handsome, and of a good size. In the northern part of the kingdom this variety succeeds well on a west wall. The fruits will hang on the tree even when matured, and, in the western parts of the country, I have seen it grown under the name of "Hanging Pearmain." This variety does well on the Paradise stock, and it makes a good cordon, for, though of good constitution, it is not a strong grower.

SANSPAREIL.—This handsome fruit is worthy of

Mr. Rivers. It is a handsome fruit of splendid quality, but, to be seen at its best, it should be grown on a warm or well-drained soil. It is not such a great cropper as some, but the superb quality makes up for any deficiency in this respect, for it is one of the best flavoured Apples in season from Christmas to April. This variety makes a good standard tree, and it is one of the best for pot culture. I grew the variety in the north of England as a cordon, and it succeeded well.

excellent quality, but it has the same defect as Blenheim Pippin—the trees require age before bearing well. The fruit is flat and of medium size, and marked with russet. In season from November until January.

LORD BURLEIGH.—A little-known variety possessing grand flavour. The fruits are small, but the variety is a first-rate dessert Apple, in season from January to March.

ALLEN'S EVERLASTING.—This is not a large fruit, but it is one of the best dessert Apples in its season, as I have kept fruits in good condition until June. The fruit is of flat shape and it has good flavour. The tree is a free grower as a bush or pyramid, and though a slow fruiter, when grown as a standard it is one of the best for furnishing latest dishes.

CORNISH AROMATIC.—This is a great favourite in the western counties for its fine flavour. It must not be confounded with the Cornish Gillyflower, a much larger fruit. I have seen good crops of this variety on small standards.

D'ARCY SPICE.—An old, Essex variety of great value at this season, and often known under the name of Baddow Pippin or Spring Ribston. The fruits vary in colour, some being much bronzed and others a dark green and much russeted. The variety succeeds well in most soils as a bush or pyramid, and, though not always a heavy cropper, it has excellent quality, and keeps well into April or May if the fruits are allowed to hang late upon the trees.

BARNACK BEAUTY.—One of the newer fruits that should find much favour, as it is a splendid cropper, and the fruits are handsome and of medium size. The tree makes upright growth, and succeeds well in any form. The fruits cook splendidly, and the flavour is sufficiently good for dessert from November until March.

CLAYGATE PEARMAIN.—A beautiful dessert Apple, and one that does well in most places, bearing freely in any form of tree. The fruits are not large, and in some soils they are much russeted, in others a dull green colour. They have soft flesh, and are in season from February to April. In order to get the best keeping qualities, gather late, and keep the fruits in a cool store. The tree is not a strong grower, but makes good growth as an espalier or dwarf pyramid. This is one of the best flavoured late varieties I have grown, and it should be in all collections, as the fruits have a splendid Ribston flavour.

BROWNLEES'S RUSSET.—I consider this one of the best of the Russets. The fruits possess good flavour, and will keep a long time. This variety does well as a dwarf standard, and it is a much better cropper than the Boston, but, unfortunately, it is known by various names.

MRS. PHILLIMORE.—A new variety that has done remarkably well as a cordon. It should be a favourite for its sweet flesh. It is in season from November to March.

STURMER PIPPIN.—This old, well-known variety does well in many gardens as a dwarf standard. It is not a success in all positions—in a garden in Northumberland it did well against a wall—but to get the best results the fruits should be left as long on the trees as possible. If worked on the Paradise stock, it fruits early in a warm soil. The fruits are in season from March until June. *G. Wythes.*

DENDROBIUM MRS. FENTON ARNTON.

THE hybrid Dendrobium illustrated in fig. 64 was shown by Sir Jeremiah Colman, Bart., at a meeting of the Royal Horticultural Society on February 22. This hybrid, which gained the Society's Award of Merit, is derived from a cross between *D. melanodiscus* and *D. Findlay-anum*. The flowers are white, with a blush tint on the sepals, and a purple blotch at the base of the lip, surrounded by a yellow disc. The specimen attracted considerable admiration.



[Photograph by J. Gregory.]

FIG. 64.—DENDROBIUM "MRS. FENTON ARNTON": FLOWERS WHITE, WITH PURPLE BLOTCH.

a place in all gardens of medium size, and it is one of the best croppers in this list. The fruits are brightly coloured, of good shape and appearance, and they keep well into April or even May. The trees succeed well as espaliers, or cordons. This is one of the newer varieties possessing good flavour.

KING OF TOMPKINS COUNTY.—An American variety introduced into this country by the late

DUKE OF DEVONSHIRE.—This is not by any means a showy Apple, but it possesses good quality. The fruits should be allowed to remain as long as possible on the trees before gathering, as it is somewhat like Blenheim Pippin in this respect—it shrivels badly if stored too early. The tree is perfectly hardy, and the fruits are in season from March until May.

WINTER RIBSTON.—A Continental variety of

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

The Rose house.—Assuming that this structure has been thoroughly cleansed and the Rose plants pruned, the latter may be started into growth for supplying early blooms. Forcing must be commenced very gradually. It is true that Roses in pots can be purchased specially prepared for forcing, but this does not fit them for immediate subjection to high temperatures. In order to provide a succession of bloom, a few pot plants may be introduced to this same house at intervals of a few weeks. A temperature of 40° to 45° at night is sufficient to start with, allowing an increase of 5° to 10° during the day. A moist atmosphere may be maintained by damping the paths and walls several times each day. Extra care is necessary in ventilating the house at this season, for the reason that the temperatures must not be allowed to suddenly fluctuate, neither must the plants be subjected to cold draughts. Watering is another operation calling for discretion. Beyond affording a top-dressing before starting the plants into growth, I do not recommend any artificial feeding until the plants have made considerable advance. As soon as the flower-buds begin to show colour a somewhat dryer atmosphere is needed, and more air may be admitted in favourable weather. As the season advances the plants will need shade from hot sunshine in order to preserve the flowers.

Fuchsia.—If it is desired to increase the stock of any variety, the old plants may be started into growth without pruning them. By this means they will give a larger supply of cuttings, and any pruning and training that is necessary can be undertaken when these latter have been secured. Spring-raised plants, provided they are reported as often as required, and have their shoots properly trained by pinching, will develop into large specimens of service in autumn for the decoration of the greenhouse or the conservatory.

Heliotrope.—This plant may also be increased by cuttings inserted now, and, like the Fuchsia, such spring-raised plants will form useful specimens for flowering in the autumn. Select the best of the young shoots as cuttings, and insert them in a sandy compost. Place them in a close, moist atmosphere of about 60°, under which conditions roots will form in a week or two. Keep the cuttings shaded from strong light. The young plants will have a tendency to bloom very early, but all such flower-spikes must be removed if large specimens are desired. A suitable compost for their final potting consists of good, fibrous loam, mixed with small quantities of sand, charcoal and well-decayed sheep manure. The Heliotrope is very suitable for training as a standard plant, in which form it displays its sweetly-scented flowers to greater advantage.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Propagation.—It is now time to commence the propagation of various soft-wooded plants required for bedding purposes. In most cases this can be done from stocks that have been preserved during the winter months for this purpose. Cuttings inserted at the present time will root more freely than cuttings taken early in the New Year. Shallow wooden boxes are the most suitable receptacles for most of the plants; they should be well drained, and then filled with a fine, sandy compost of a light rather than heavy nature, which should be made moderately firm. Where the necessary conveniences exist, it is better to insert the cuttings, in the house where they will remain, which should have a warm, moist atmosphere, similar to that of a propagating pit or a house used for forcing early Melons and Cucumbers. When the boxes have been furnished with cuttings, apply a watering with tepid water through a fine rose-can. The cuttings will need shade from bright sunshine during the middle of the day. This treatment will suit *Irisine*, *Alternantheras* in variety, *Lobelias*, *Ageratums*, *Tropæolum Fairy Queen*, an excellent variety with variegated foliage; *Lantanas*, *Verbenas*, and other subjects of a similar nature.

Seed sowing.—The present is a suitable time for sowing seeds of many kinds of bedding plants, including annuals. Sow the seeds in well-drained, clean pots or pans, and raise the seedlings in a gentle heat. Immediately the young plants appear above the soil, place them as near to the glass as possible, and when they can be handled, prick them out into boxes and cultivate them in pots or frames.

Perennial Lobelia.—Stocks of Perennial *Lobelias*, having been stored under conditions similar to those adopted for *Dahlias*, should now be divided and potted into 3-inch pots, which should be placed in a house having a warm, moist atmosphere. They are very effective bedding plants, especially *L. cardinalis* and the variety *Queen Victoria*. There are now beautiful hybrids obtainable from seed which produce a great variety of colours. Seeds may now be sown of the species or of hybrids, if it is necessary to increase the stock.

Standard bedding plants.—A certain number of standard plants is indispensable in the modern system of summer bedding. Species suitable for this purpose are *Streptosolen*, *Lantana*, *Fuchsia*, *Heliotrope*, &c., and to these plants attention must now be paid, in order to induce them to break into growth. If they were pruned before storing them in their winter quarters they will now require very little attention in that direction. Introduce them into a moist heat, and apply water very sparingly to the roots until a certain amount of growth is made, but syringe them with tepid water on all favourable occasions. As the growths lengthen, the plants should gradually be inured to a cooler atmosphere, keeping them in a light position, where the growths will not become drawn. Young plants that are cultivated for the purpose of forming standards will need every encouragement. Any *Fuchsias* or other bedding plants still in the cutting pots should be potted up at once and placed together in houses or heated pits.

Begonias.—Tuberous rooted *Begonias* that were saved from the last year's stock, will now need starting into growth. The best method is to place the tubers in boxes containing leaf-mould or fibre in a fairly moist condition, that no application of water will be needed for some time. Put the boxes in a warm structure, such as a plant stove, and maintain a moist atmosphere. When growth is apparent, pot them singly into pots just large enough to contain the tuber. Let the pots be well cleansed and drained, and for potting use a mixture of good fibrous loam, leaf-mould and coarse sand, adding a sprinkling of charcoal. The plants should be placed as near to the glass as possible, but at the same time they require shade from bright sunshine. Cultivate them for the present in a warm greenhouse temperature, but afterwards harden them gradually and thoroughly before they are removed out-of-doors.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to SIR TREVOR LAWRENCE, Bart., Burford, Surrey.

Resting Orchids.—It is now time to return resting plants of *Vanda teres*, *V. hookeriana*, *V. × Miss Joaquim* and *Renanthera coccinea* to the East Indian house, or plant stove, in which the lightest position available should be selected for them, as no gain is now likely to accrue from prolonging the resting season. Where a Mexican house exists a more suitable position could probably be found for the first-named species, as it does not require quite so much heat as the others. The fine yellow *Oncidium ampliatum* and its variety *majus* are starting into growth, and will soon be sending up their large flower-spikes. Suspend the plants in the warmest house, and apply water often enough to keep the roots moist. Insect pests often devour the flower-spikes before the grower is aware of their presence. Let a careful watch be kept, and immediately the spikes are seen protect them by fastening a ring of rough wadding round each.

Cool houses.—The flowering season of such *Pleiones* as *P. humilis*, *P. hookeriana* and its variety *platyglossa* is now over, and as new growth commences the plants should be repotted into a compost consisting of equal parts of fibrous loam, *Osmunda* fibre, chopped *Sphagnum*-moss with a sprinkling of coarse silver sand, and small crocks, the whole of these materials being well mixed together. Cut up the fibres and

moss moderately fine. Shallow pans are more suitable than pots, and the plants should be suspended where plenty of fresh air is admitted to the house. Water should be sparingly afforded until the new roots have got a firm hold of the compost. In a house which is slightly warmer than that where *Odontoglossums* are grown, such distinct *Dendrobiums* as *D. Kingianum*, *D. K. album*, *D. delicatum*, *D. linguiforme*, *D. Hillii*, and *D. speciosum fusiforme* bloom profusely at this season, and are very attractive. These plants thrive well in shallow teak-wood baskets, suspended close up to the roof glass, and containing only a very shallow compost, consisting of *Osmunda* fibre and *Polypodium* fibre, with plenty of small crocks intermixed. The proper time to afford fresh rooting material is when growth recommences, but as the growths do not extend themselves very far, the plants, if allowed a moderate space wherein to grow, need no root disturbance for many years, provided the compost does not become sour or otherwise deteriorate. *Oncidium pulchellum* is now growing again, and will need more water at the root; the flower-spikes will soon begin to show, and, as these take a long time to develop, the plants should then be elevated well up to the roof-glass. Where *Odontoglossum grande* and *O. insleyi* grow well, a similar position should suit this species. Its greatest enemy is the small yellow thrip; therefore, the plants should be placed in any house that is going to be vaporised: this is far better practice than trying to eradicate such tiny insects by brush and sponge. Another little gem is the bright-scarlet *Lælia monophylla*, which is now growing well, in a comparatively cool house. It has always been a difficult plant to establish, but the greatest difficulty has been to find a suitable temperature for it, also the proper materials for its roots. Any plants that require fresh material should now be given attention. Place them in the smallest pots, or shallow pans, that it is possible to get them in, but do not repot a specimen unless it is absolutely necessary to do so. Afford plenty of drainage materials, and use the same compost as previously advised for *Dendrobiums*. Elevate the plants in a shady position near to the roof-glass, and when once established in their receptacles never allow them to become in the least dry. *Oncidium pulchellum* and *Lælia monophylla* are natives of Jamaica, and grow at elevations of about 4,000 feet above sea-level, where the temperature is seldom more than 65° by day, and sometimes a degree or two below 50° at night. The atmosphere is moist, but not excessively so, as the plants are found growing on trees which are partly exposed to winds.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to SIR ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Cucumbers.—Maintain a steady bottom heat of 75° to 80° by occasionally renewing portions of the bed with fresh manure and leaves which have been previously prepared for the purpose. Apply a top-dressing of soil to the plants when the roots appear on the surface, using a light compost of turfy loam, horse droppings and peat. Maintain plenty of moisture in the atmosphere by frequently sprinkling the paths and walls with water and sometimes liquid manure. See that these are warmed to the same temperature as the atmosphere of the house, otherwise they will reduce the heat. Let the plants have all the light available, and admit fresh air on fine days, but only for about one hour at mid-day. Procure dung and leaves for the making of successional beds. When the beds are made, place mounds of soil on them at distances of 15 inches apart. Transplant seedling Cucumbers into small pots after the first rough leaves have formed, and pinch them at the third or fourth leaf.

Melons.—Maintain a bottom heat of 70° to 75°, renewing portions of the bed whenever necessary. See that those parts of the bed near to the hot-water pipes do not become dry, as this will not only prevent the heat circulating freely through the manure, but create a breeding place for insect pests.

Fig trees in pots.—Trees that were started in December are now approaching their flowering stage, and the "fruits" do not swell at this period. Syringing should be discontinued when it is seen

that the "eye" of the fruit is opening. It is not advisable to unduly force or stimulate the trees until it is seen that the fruits have started swelling again, when liquid manure may be applied and every encouragement given the plants to perfect their fruits. The temperature of the house should range from 65° to 70° at night-time, with a rise of 5° by day. Sprinkle the paths and other surfaces inside the house several times daily to create a humid atmosphere. The evaporating pans placed on the hot-water pipes should be kept full of liquid manure made from cow or horse dung, and the house may be damped with the same liquid in the evening.

Fig trees in borders.—Trees which are growing freely may be allowed a temperature of 55° to 60° at night-time, with a slight increase of warmth during the day. Syringe the trees both mornings and afternoons with tepid, soft water. The Fig is naturally a gross feeder, but its fruits best under glass in a restricted root run. When the border is full of roots frequent applications of liquid manure may be given, and this stimulant may be varied by an occasional sprinkling of soot or chemical manure. Young trees, and those growing in large, deep borders frequently make rank, unfruitful wood: in such cases manures should be given very sparingly. To secure a good second crop of fruits it is advisable to pinch all the young growths at the same time, even if this necessitates pinching a few at the second leaf.

Fig trees for successional fruiting.—These later trees are commencing to grow. Maintain a minimum temperature of 45° to 50°. Syringe the branches once or twice daily according to the weather conditions, and take advantage of the sun's heat by closing the house early in the afternoon with plenty of moisture present in the atmosphere.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Protection of the buds.—At this stage every care must be taken to preserve the buds from attacks of birds, and especially of the destructive bullfinch. If any damage from this cause is observed, the trees must be protected with 1-inch mesh netting, taking care to securely fasten the nets so that the wind will not bring them into contact with the trees or they will be apt to damage the buds. In the case of standard Plums or Cherries, these may be syringed occasionally with some distasteful mixture or with one of the bud-protecting compositions to be purchased from the leading sundriesmen. In gardens or orchards where hares or rabbits are troublesome, causing damage by gnawing the bark, the stems and branches may be painted up to 2½ feet in height with the following mixture: One quart of gas tar, and 4 lbs. of ordinary cart grease well mixed together.

Planting operations.—If any planting has been delayed until this time, through unfavourable weather, it must be brought to a completion as soon as possible. At the same time it is not desirable to tread upon the soil when it is in a sodden condition. In cases where planting has to be done where the soil is on the wet side, it is useful to obtain a few barrowloads of dry soil and some freshly-burnt wood-ashes, and to mix a little of these materials with the ordinary soil as the work proceeds. Trees which are moved at this season will require extra care and attention, as they will not become established before the drying winds and bright sunshine occur. After the planting is finished, secure the trees against being swayed by rough winds, and apply a mulch of short stable manure over the roots. In the event of dry weather, syringe the trees each day at about noon, in order to keep the buds fresh and plump, and, if the dry weather continues, apply copious root waterings.

Vines.—Vine culture for Grapes out-of-doors is only possible in a few favourable counties in this country. Vines are more often planted in the open for their ornamental and highly-coloured foliage. If such vines are not already pruned, they should be given immediate attention. The shoots should be cut back to one or two buds. Apply a little "knotting" to each cut in order to prevent bleeding. The roots should be given a dressing of Gishurst Compound to prevent red spider and mildew. In training the canes, let each be given an abundance of space, so that the growths, and especi-

ally the young ones from the base which may be required to replace the older rods, can properly develop.

General work.—If any pruning or spraying still remains to be done the work must be completed as early as possible. Some trees are already bursting their buds, and therefore it is no longer safe to spray with any of the caustic liquids.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Seakale.—The present is a suitable time to make plantations of Seakale for forcing in the open. The plantations are frequently allowed to remain too long on the same piece of ground, the result being the produce deteriorates from year to year. The very best Seakale can only be obtained when the beds are renewed every two years. For forming a plantation, good, clean thongs should be chosen, planting them in clumps of five, so that this number of crowns may be covered by one pot when forcing commences in the following spring. The distance allowed between the pots in the row should be at the least 18 inches, which space will allow for sufficient fermenting material to produce the degree of heat required. Seakale needs a rich soil, and it might be convenient to have the beds in some out-of-the-way part of the garden. For the latest supplies in the spring, good Seakale may be obtained by simply covering the crowns with 1 foot deep of leaf-mould. By this method, however, the heads are liable to become stained, unless some additional covering can be applied to keep off heavy rains.

Onions.—Plants raised in January will now be ready for pricking into boxes filled with a good, rich compost, consisting of three parts loam and one part decayed manure made fine by being passed through a sieve. Press the soil firmly into the boxes, and take care to lift the young Onion plants without breaking their roots. Shake the soil carefully from the plants, and then insert the Onions at distances of 3 square inches. Another method is to pot them singly into small pots, keeping them in a close pit for a few days, but admitting air in increased quantities afterwards. Apply water very carefully until fresh roots are made, but syringe the plants twice daily.

Cabbages and Cauliflowers.—Do not allow any Cabbage and Cauliflower plants to remain in the seed-boxes after they have made their first rough leaves. Transplant them into boxes or portable frames, making up the bed and soil to within a few inches of the glass. If these young plants are carefully treated, they should be ready to put out early in April, in some sheltered part of the garden.

Carrots.—Early Carrots in frames will require thinning until the plants stand at 3 inches distance each. Apply a watering directly the planting is finished, to resettle the soil about the roots, keeping the pit rather close for a few days. Slugs may be caught by placing a few Cabbage leaves around the edge of the bed, and a slight dusting of lime can be applied early in the morning.

Potatoes.—Owing to the wet condition of the soil out-of-doors, it will be well to plant another pit with Potatoes. The seed tubers, having been placed in trays some time ago, will now have shoots in an advanced stage. Be very careful not to break these shoots, and plant the tubers in rows 18 inches apart. Potatoes planted in pits early in the year will now be ready for earthing up. The process is best accomplished by adding fresh light soil to the pit, rather than drawing the soil from between the rows, as is done out-of-doors. Afford the plants liberal supplies of water, and ventilate the pit on all favourable occasions, both by night as well as day.

Peas.—Peas that have been raised under glass for planting on a south border must be thoroughly hardened before they are planted out-of-doors. In putting out these house-raised Peas, it is desirable to place stakes to them at once, and afford them protection from rough winds by placing Spruce branches each side of the rows until the Peas are established. Where time and space is available, this method of growing early Peas is the best, and safest to pursue. Rough winds are the greatest danger to such plants, but protection can easily be applied if plenty of evergreens are at hand.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of City Parks, Cardiff, Glamorganshire.

Prevention of the erosion of water edges.—Most gardeners, whether in private or public service, are called upon at one time or another to deal with the wear and tear that constantly goes on at the edges of streams, lakes and ponds. It is always well when this work has to be undertaken, that it should not merely be carried out in the most effective manner possible, but in such a way as to be in character with its immediate surroundings.

Erosion by stream.—In the case of a stream, it is merely a matter of dealing with the erosion that takes place at the sides on account of the continuous flow of water. As a rule, where a stream passes through ordinary soft ground, the greatest wear and tear takes place at the normal water level, and the best method of preventing damage will depend upon the conformation of the banks. If these are high, with a good sloping batter, then, when practicable, the edges are best pitched with stones for a height of 12 inches or 14 inches above normal water level. In carrying out this work every care must be taken to give the pitching a long slope. The banks above the stonework are always the better for being kept in grass—regularly mown—as when flooding takes place the water passes over the turf without washing away the soil. When the banks of a stream are perpendicular to the water and not a great distance above its bed level, then, in such places where the soil is being worn away wattling should be done. Although this requires redoing every few years, it is a cheap and exceedingly effective method of protecting the edges of brooks and even large rivers.

Erosion by lakes.—In combating the erosion which goes on as a result of the great volumes of water dashed on the banks of lakes by the force of the wind, the difficulties are much greater. In the case of a stream the precautions taken against wear and tear are generally so well hidden that they are hardly even noticed, except by the most observant, whereas in dealing with the sides of a large area of water they are invariably so patent as to almost claim attention. Where a sheet of water is shallow at the edge, the planting of sedges, rushes, waterflags, Acorns, &c., tend to preserve the sides from excessive washing. In dealing with the edges in this way, however, care must be taken not to introduce—except at very rare intervals—the taller water plants, such as Typha and Phragmites, as these are apt to shut out views of the water and prevent fishing and model yachting from the sides of the lake. When the water is deep and the force of the waves on the sides consequently strong, it is almost essential, where the banks are composed of a soft material, to resort to dry-stone pitching. When this has to be done, the natural charm of the water-edge is often spoiled, as the whole is given a more or less artificial appearance. Beauty, however, has to be sacrificed when it is a question of preserving land from entire destruction, and this is the excuse one has to make for the introduction of pitching at the edge of a lake. Great care has to be exercised in setting out the proposed lines for stone pitching, as two distinct dangers have to be avoided. The one is the introduction of too much irregularity, and the other is too great stiffness and formality. While in Nature, the contour of the edge of a lake, which forms miniature bays and tiny capes and headlands, is quite charming to look upon, when reproduced in stonework by sudden curves and turns, it looks childish and quite as objectionable as long straight lines. In this, as in all other matters, the ideal method of dealing with edges of water is the happy medium between the two extremes. It has been found that the greater the angle of slope given to pitching, the better will it withstand the force of water, hence the greater will be its duration. The top layer of stone should always be laid on cement, to add greater stability to the whole structure. That the stiff formality of pitching can be considerably minimised is perfectly evident to everyone who has constructed it. Many of the crevices can be planted with such plants as Salix repens, Stachys palustris, Lycopodium europæus, various Menthas, Lysimachia thyriflora, Willow Herbs, Scrophularias, Lythrum salicaria and many other British plants which grow freely by the water-edge.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR MARCH.

SATURDAY, MARCH 5—
Soc. Franc. d'Hort. de Londres meet.
TUESDAY, MARCH 8—
Roy. Hort. Soc. Coms. meet. and Spring Bulb Sh. (2 days). (Lecture at 3 p.m. by Mr. F. J. Baker on "Plant Hygiene.") British Gard. Assoc. Ex. Council meet.
THURSDAY, MARCH 10—London Branch of B.G.A. meet.
MONDAY, MARCH 11
Ann. Meet. United Hort. Ben. and Prov. Soc.
THURSDAY, MARCH 17—
Torquay Fl. Sh. Linnean Soc. meet.
TUESDAY, MARCH 22—
Roy. Hort. Soc. Coms. meet. (Fourth Masters' Memorial Lecture at 8 p.m. by Mr. A. D. Hall, on "The Adaptation of the Plant to the Soil.")
WEDNESDAY, MARCH 23—
Exh. of Vegetables and Fruits (intensive cultivation) at R.H.S. Hall. (Lecture at 3 p.m. by Mr. E. O'Sullivan on "Intensive Culture.")
MONDAY, MARCH 28—Easter Monday. Bank Holiday.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—41°.

ACTUAL TEMPERATURES—
LONDON.—Hednesday, March 2 (6 P.M.): Max. 52°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 3 (10 A.M.): Bar. 30.2; Temp. 47°; Weather—Sunshine.

PROVINCES.—Wednesday, March 2: Max. 48° Cornwall; Min. 45° Denbigh.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Perennials, Plants, Lilioms, &c., at 12; Roses and Fruit Trees, at 1.30, by Protheroe & Morris, at 67 & 68, Cheapside, E.C.
WEDNESDAY—
Border Plants and Perennials, Lilioms and Hardy Bulbs, at 12; Roses and Fruit Trees at 1.30; Palms and Plants, at 5, by Protheroe & Morris, at 67 & 68, Cheapside, E.C.
Clearance Sale of Nursery Stock, at Kent House Nursery, Beckenham by Protheroe & Morris, at 12.
THURSDAY—
Clearance Sale of Nursery Stock at Woodcote Grove Nursery, Smitham, Bottom Lane, Purley, by Protheroe & Morris, at 12.
FRIDAY—
The "Hildenley" Collection of Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

We are pleased to give a hearty welcome to Mr. Long's book on weeds* and hope that it will find its way into the hands of all good gardeners.

To the layman and to the unimaginative in general, the study of weeds may seem a dull and unprofitable occupation: to them, weeds are a nuisance and nothing more; but to the good gardener the study of weeds makes many appeals. Not only does man derive his main food from a plant, which, in a remote past, yielded to the art of cultivation, and, changing out of all recognition, became the Wheat of to-day; but also the many introduced plants which he cultivates in glass-houses are weeds in their native haunts. For instance, the sensitive plant, *Mimosa pudica*, forms thick carpets over many acres, both in its proper habitat and in tropical countries into which it has been introduced.

* *Common Weeds of the Farm and Garden*, by Harold C. Long, B.Sc., in collaboration with John Percival, M.A., with 106 illustrations. (Smith, Elder & Co., London.) 1910. Price 6s. net.

The garden Beet is a comparatively modern convert from wildness to cultivation.

But, beside such considerations as these, the gardener recognises in weeds foemen worthy of his steel; enemies in the destruction of which all his skill and ingenuity are engaged. Though it is—or ought to be—war without quarter, he cannot refrain from feeling a certain interest in his victims. For by dint of waging ceaseless war upon weeds the gardener has learned many a useful lesson which in their absence might have remained unlearned. Thus it is, in all probability, from the use of the hoe in the extermination of weeds that the value of a constant stirring of the surface soil has come to be appreciated. As everybody knows, the value of hoeing and similar cultivation of the soil between the rows of growing plants lies not only in the clearing of the ground of plants which compete with the crop for water and mineral substances, but also in conserving water in the soil. Thus, in successfully attacking weeds the gardener gains a double victory.

Again, the watchful eye of the cultivator, ever on the plants of his fields, comes to recognise that the weeds afford no small indication of the fertility of the soil in which they grow. As Mr. Long points out, Sedges, Equisetum and other plants indicate wet, undrained land. Thistles, Buttercups and Coltsfoot usually occur on good land. The Stinging Nettle also affects such situations, and hence, perhaps, the explanation of Shakespeare's saying:—

The Strawberry grows underneath the Nettle,
And wholesome berries thrive and ripen best,
Neighbour'd by fruit of baser quality.

Yet though this might serve as a courtier-like excuse for the wild youth of Henry V., it cannot serve to palliate dirty cultivation.

Of other weeds, some affect sandy soils; Spurrey, Cornflower, small Eindweed, &c.; others, such as Burnet, Bladder Campion, Chicory and the like, are characteristic of chalky land.

But it is not to be supposed that Mr. Long's book consists of interesting generalities: it is rich also in information which the most practical will find of service.

All the common weeds are described, and their characters, upon which methods of extermination must be based, are given in detail. The descriptions of the weeds are aided by good illustrations; though we think that Mr. Long might have added in each case a condensed description in scientific terms of the several species. It is a perfectly simple matter, involving a few hours work, for anybody to familiarise himself with the commoner scientific terms used in the description of the flowers of plants; and as much may be said in two lines by the use of scientific terms as can be said in a page in general terms, and said with greater accuracy. Mr. Long may have feared that the use of technical descriptions might have frightened the farmer. This may be so, but we feel sure that it would have increased the usefulness of the book to the gardener and general reader. Mr. Long's account of the ways in which weeds spread—by seed, by runners, rhizomes and other organs—is excellent, and will serve to convince all who have to deal with weeds that each kind of weed must be

treated on the basis of an understanding of its habit of growth: the annual plant cut down before seeding, the perennial eradicated or worried to death by constant cultivation of the soil; Charlock killed out by spraying with copper sulphate; Moss on lawns treated with sulphate of iron, and so forth.

One special reason which leads us to dilate on the subject of weeds and to recommend Mr. Long's book is that weed-extermination can only be effected by collective action.

As the authors point out, it is of no final avail that the good gardener cleans his land of Thistles if his neighbour or the surveyor of roads cultivates prolific crops of these weeds on adjacent ground. In this connection Appendix III. of Mr. Long's book will prove of interest. Herein are collected the various legislative enactments which have been put in operation by different countries in order to enforce cleanliness of cultivation. Whereas Canada, Australasia, and S. Africa have stringent laws relating to the eradication of noxious weeds, the only parts of the British Isles in which similar laws are in force are Ireland and the Isle of Man. In the latter place a "Weeds Act," passed in 1900, makes compulsory, under certain conditions, the destruction of "Thistles, Cushtags and common Docks," both in occupied land and in that adjacent to the public highway. Mr. Long gives the results of enquiries with respect to the weeds which, by common consent, are the worst pests of arable and Grass land. On arable land Couch or Twitch obtains easily the highest number of bad marks; Charlock runs it fairly close, and Docks and Thistles tie for the third place in the black list. In Grass land Thistles may boast of being the worst weeds, and Buttercups of being almost as bad.

Though much of the information given on the subject of seed impurities applies more directly to agriculture, nevertheless horticulturists will find it not unprofitable to read what Messrs. Long and Percival have to say on this matter.

The concluding chapters on weeds of ponds, rivers and ditches, on lawns and drives, and on the principles of seed-testing, though brief, contain much useful information.

OUR SUPPLEMENTARY ILLUSTRATION.—

Primula denticulata is amongst the best-known of the hardy Primulas in this country. It was introduced from the Himalayas, but, according to Mr. FORREST, the species grows also in abundance on most of the mountains of Western and North-Western Yunnan, in almost every variety of situation from the moistest to the driest and most barren. In company with *P. malacoides* and *P. Poissonii*, it touches the lowest altitudinal range of the genus in that region, approximately 5,000 feet—rising to as high as 12,000 feet. The variation of form and range of colour is almost endless; lilac is the dominant shade, but occasionally specimens are found of a very deep blue, whilst on the eastern slopes of the Lichiang Range in latitude 27° N., Mr. FORREST discovered a form with flowers of a soft rose-pink shade. Under the most favourable conditions, it covers large tracts of mountain pasture, to the exclusion of almost all else, and is then a magnificent sight. The photograph reproduced in the Supplementary Illustration was taken on the eastern flank of the Tali range, at an altitude of 9,000 feet.

ROYAL HORTICULTURAL SOCIETY.—The Society's annual spring bulb show will be held on Tuesday and Wednesday next, March 8 and 9. The Council decided to continue the exhibition this year for two days because of its evident popularity last year, and the crowded attendance which then resulted from a one-day show. Besides the open classes for flowers, plants, &c., there are additional competitive classes for forced Hyacinths, bulbs grown in fibre (Hyacinths, Tulips, Narcissi), and Amaryllis. At 3 o'clock on March 8 Mr. F. J. BAKER, A.R.C.S., will deliver a lecture on "Plant Hygiene."

HORTICULTURAL SHOW AT LIVERPOOL.—In connection with the Royal Agricultural Society's show at Liverpool in June, it has been decided that the horticultural exhibition shall remain open from Wednesday, June 22, to Saturday, June 25. The schedule will be similar to that provided at Gloucester last year, with the addition of classes for the best collection of eight kinds of vegetables and for the best collection of eight kinds of fruit. The Hon. JOHN E. BOSCAWEN has been appointed steward of this section, and Mr. PETER BLAIR manager. The latest date for receiving entries will be Saturday, June 4. The schedule, entry forms and full particulars can be obtained from Mr. THOMAS McROW, secretary, Royal Agricultural Society of England, 16, Bedford Square, London, W.C.

HORTICULTURAL CLUB.—The next house dinner of the Club will take place on Tuesday, March 8, at 6 p.m., at the Hotel Windsor. Mr. C. BOGUE LUFFMANN will give an address on "Old Age in Trees."

SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the lecture hall of the Institution on Monday, March 7, 1910, when a paper will be read by Mr. JULIAN C. ROGERS, entitled "The Surveyors' Institution: A Forty Years' Retrospect." The chair will be taken at eight o'clock. At the ordinary general meeting on Monday, April 11, 1910, a paper will be read by Mr. T. A. DICKSON (Fellow) on "The Report of the Royal Commission on the Poor Laws."

THE HAARLEM SHOW.—We continue to receive information respecting the Jubilee Flower Show organised by the General Bulb Growers' Society of Haarlem, which will be opened by H.R.H. Prince HENRY OF THE NETHERLANDS on March 23. The exhibition halls, although spacious, will prove too small to contain the many exhibits for which space has already been requisitioned. An extra building has been constructed for plants and flowers, but as the grounds were planted with bulbs in autumn, and are also rather crowded, it will be impossible to erect more buildings. The show is arranged so as to remain attractive from the opening to the end. The bulbs planted will succeed each other regularly. The opening week will see the bloom of the Crocus. Next will come the Hyacinth and its elegant "Miniature" offspring, which will be shown in the exhibition grounds in the most modern patterns and artistic grouping. Daffodils and Narcissi are naturally grouped at the bases of the old trees which are the pride of the Haarlem "wood," the site of the show. From the middle of April until the end of May, Tulips will flower in such variety as few people have seen at one time. There are also numbers of miscellaneous bulbs, rockery plants, and herbaceous perennials, flowering trees and shrubs, banks of Rhododendrons and Azaleas along the water-side, and clipped trees in the French garden. The temporary shows in buildings will be held from March 23-31, April 15-24, May 4-12, and May 20-22. The international jury

will meet in March and April, under the presidency of Mr. DE MAREZ OYENS, ex Minister of Commerce, Industry, &c., and now president of the Netherlands Federation of Horticultural Societies.

NATIONAL CHRYSANTHEMUM SOCIETY'S TRIALS OF SINGLE CHRYSANTHEMUMS.—We are informed that arrangements have been made for a trial of all varieties of single Chrysanthemums during the forthcoming season, with the primary object of determining varieties that are too much alike. The following members of the trade have promised to assist in this work, viz.:—Messrs. W. WELLS & Co., LTD., Merstham, Surrey, who have undertaken to grow, outdoors, the September and October varieties; Mr. H. J. JONES, Ryecroft Nurseries, Hither Green, S.E., and Keston, Kent, who will grow, in pots, the November varieties; and Messrs. H. CANNELL & SONS, Swanley, Kent, who will grow the December varieties. In order that these series of trials may be of a comprehensive character, the Floral Committee will be grateful if nurserymen or raisers possessing varieties not catalogued by the above-mentioned firms will forward direct to them either cuttings now, or plants later in the spring. When forwarding stocks for the purposes of these trials, senders are asked to attach the names and give particulars as to growth and habit, and any other information. The firms undertaking the trials will afford every facility to all who are interested to inspect the respective collections during the flowering season.

PETER BARR MEMORIAL.—As already announced, a fund is being raised for the purpose of providing a suitable memorial to the late Mr. PETER BARR, V.M.H. The promoters aim at a Barr Medal, to be awarded annually in connection with work among Daffodils, and the maintenance of an orphan through the medium of the Royal Gardeners' Orphan Fund. The following is the preliminary list of subscribers:—Mr. J. G. Baker, F.R.S., V.M.H., Messrs. Barr & Sons, Mr. J. T. Bennett-Poe, V.M.H., Mr. E. D. Bland, Mr. C. Bourne, Mr. E. A. Bowles, Hon. J. Boscawen, Mr. F. H. Chapman, Mr. E. T. Cook, Mr. W. B. Cranfield, Mr. E. M. Crosfield, Mr. Charles H. Curtis, Rev. C. T. Digby, Mr. C. Dixon, Miss Roberta F. M. Doyne, Mrs. J. Douglas, Mr. J. Douglas, V.M.H., Mr. C. T. Druery, V.M.H., Rev. G. H. Engleheart, V.M.H., Mr. J. Harrison, Miss Jekyll, V.M.H., Rev. J. Jacob, Mr. Andrew Kingsmill, Mr. Wm. Marshall, V.M.H., Mr. Henry B. May, Mr. Donald MacDonald, Mr. W. A. Milner, Mr. S. Mortimer, Messrs. J. & R. Pearson & Sons, Mr. R. Hooper Pearson, Mr. G. Paul, V.M.H., Mr. W. Poupert, Messrs. T. Rivers & Sons, Mr. Charles E. Shea, Messrs. Sutton & Sons, Mr. J. Sweet, Mr. Robert Sydenham, Mr. Harry J. Veitch, V.M.H., Mr. P. C. M. Veitch, Mr. James Walker, Messrs. Van Waveren & Sons, Miss Willmott, V.M.H., Rev. W. Wilks, and Mr. A. M. Wilson.

"THE BOTANICAL MAGAZINE."—Illustrations and descriptions of the following plants are published in the March issue.

REHMANNIA HENRYI, tab. 8302.—This species of *Rehmannia* was discovered by Mr. A. HENRY about 1835 in the neighbourhood of Ichang, and subsequently collected by him near Nanto. Mr. E. H. WILSON introduced seeds of the species to this country. Some of these seeds were presented to Kew in 1907 by the director of the Arnold Arboretum, Massachusetts. Plants raised from them were grown in the greenhouse, and flowered first in 1908, and again in 1909. Formerly, the plant was treated as a form of *R. Piasezkii*, a native of the southern parts of Shensi, which differs in being over 3 feet high and in having subsessile bracts or flowering leaves and purplish flowers. *R. Henryi* is nearly allied to

R. angulata, which formed the subject of the Supplementary Illustration in our issue for February 12. Its flowers are yellowish, with minute red specks, the limb of the corolla being white. The species is said to set seed freely, and it may prove hardy in the warmer parts of England.

AQUILEGIA ALPINA, tab. 8303.—The plate of *A. alpina* has been prepared from material obtained from Mr. D. HILL, in whose rock-garden at Herga, Watford, the plant flowered freely early in the summer of 1909. The species is a native of the Alps of Dauphiné, Switzerland and Piedmont, and of the Tuscan and Emilian Apennines. Mr. HILL obtained his plant from the Pleine Madeleine, near Chandelon, in Valais, where the species was found growing on a small level alp, bordered with low trees and shrubs, at about 5,000 feet above sea level. The flowers are from 2½ inches to 3 inches across, and in colour are a rich shade of blue-violet.

RHODODENDRON MUCRONULATUM, tab. 8304.—This species belongs to the section *Rhodorastrum*, in which the flowers are solitary in each involucre of bracts instead of being in trusses. The present plant was looked upon by the late Mr. MAXIMOWICZ as being a variety of *R. dauricum*. The plant was obtained for Kew from a firm of nurserymen in Yokohama, under the name of *R. quinquefolium*. It is expected that *R. mucronulatum* will prove hardy in this country. At Kew the plants, growing in a sandy, peaty soil, made shoots 6 inches to 12 inches long in the summer of 1909. The species is deciduous, and can be increased by means of cuttings. It forms a dwarf shrub, and the flowers are mauve coloured.

PITTOSPORUM COLENSOI, tab. 8305.—This species is very nearly allied to *P. tenuifolium*, and is tender in most parts of the country. The specimen now figured is from a plant growing in Mr. T. A. DORRIEN SMITH's garden at Tresco Abbey, Isles of Scilly. The flowers are rich purple. An illustration of a specimen growing in the late Lord ANNESLEY's garden at Castlewellan was published in *Gardeners' Chronicle* for November 18, 1899, p. 370.

NOTYLIA TRISEPALA, tab. 8306.—This species of *Notylia*, from tropical North America, was described as long ago as 1852 by LINDLEY, in *Paxton's Flower Garden*, vol. iii. The genus belongs to what are termed botanical Orchids, as distinguished from those which produce showy flowers. The tiny green and white flowers are produced in pendulous scapes 3 inches to 7 inches long, therefore the plant would be suitable for cultivation in a basket.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of this society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, March 14, at 8 p.m. Mr. CHARLES H. CURTIS, chairman of committee, will preside.

BELGIAN ORCHID GROWERS.—The Cercle des Orchidophiles Belges, which was reconstituted in 1909, held its first general meeting on the 20th ult., at the Brussels Botanical Gardens. M. le Comte JOS. DE HEMPTINNE presided over a large attendance. Members of the committee present included MM. CH. DIETRICH, VERDONCK, THEODORE PAUWELS, and E. PRAET. Various subjects were discussed, including the unification of the rules governing the monthly horticultural meetings at Ghent, Brussels, Bruges, and Tournai; the participation of the Cercle des Orchidophiles Belges at future national and international exhibitions; also the participation of the Cercle at the International Horticultural Congress, which will be held at Brussels during the World's Fair. One of the main objects of the Cercle being the popularisation of Orchid culture, those who undertook the task of reconstituting the society deserve the thanks of all orchidists.

FLOWERS IN SEASON.—Messrs. Wm. Bull & Sons, King's Road, Chelsea, have sent us flowers of their strain of *Primula sinensis*. The selection includes some 16 varieties, in colours ranging from crimson to white. Amongst the double varieties, *Fulgens* is notable, being a rich shade of crimson. *Salmon Queen* and *Pink Beauty* are two delicately-tinted varieties, the colours of which are indicated by their respective names. The largest flowers were labelled *Snowdon*; they are white, and set off by a prominent yellow eye.

EDINBURGH SPRING FLOWER SHOW.—The Royal Caledonian Horticultural Society will hold a spring flower show on Wednesday and Thursday, April 13 and 14, in the Waverley Market, Edinburgh. The two most important classes are for a group of miscellaneous plants occupying a space of 15 feet by 10 feet, and for a group of Orchids. Altogether there are 143 classes, divided as follows:—Plants 81, cut flowers 26, fruit 4, vegetables 19, the remainder being made up of 12 for amateurs, and one for under gardeners. This last is the most interesting of all. There is a plan drawn to scale of a house and grounds extending to about 16 acres; the land is required to be laid out as pleasure grounds and kitchen gardens. In the vegetable classes a first prize of 30s. is offered for six distinct kinds of vegetables. An interesting class is for 24 Alpine plants in pots. There are also numerous classes for bulbs, Auriculas, Primulas, and other spring flowers.

ABERDEEN COLLEGE OF AGRICULTURE.—Members of the governing body, accompanied by Mr. A. D. HALL, who is on a visit to Aberdeen in the interests of the Scottish Education Department, recently inspected Mains of Craibstone, near Aberdeen, with a view to establishing a farm and school of domestic economy for agricultural students similar to the Munster Institute at Cork. The visitors were favourably impressed with the house and farm, and there is every prospect that the main features of the scheme will be carried out. The instruction intended to be given at Craibstone will include everything pertaining to work on the land.

VICTORIA PARK, STAFFORD.—This park, which, since its laying out, has provided an agreeable approach from the railway station to the town, was extended in 1905, in such a manner as to include the famous Isaac Walton Walk, which extends by the River Sow. Considerable planting was done in the autumn of 1905 by Messrs. Tom B. Dobbs & Co., nurserymen, of Wolverhampton, and the necessary funds were raised by public subscription. According to a local paper, an extension of the park is again being made, this time by the corporation, under the direction of Mr. W. PLANT, Borough Engineer. It consists of a long border towards the town side. The trees now being planted include standard Thorns, with Hollies, Golden Privet, and Rhododendrons in front. Messrs. Dobbs are planting a number of Ivies and other species. Mr. DAVIES, park-keeper, is carrying out other improvements, including the formation of a bowling green.

JAPAN-BRITISH EXHIBITION.—The organising Committee of the Japan-British Exhibition write us as follows:—"The city of Tokio is sending an exquisite miniature garden. It is designed by the renowned Taikoyen in Shiba Park, and will be no more than 12 feet long by 7 feet broad. Here are to be found diminutive old trees, houses exactly modelled on the smallest scale, ponds and rocks in closest miniature. Such perfect care and minute attention is bestowed on this work of art that the very trees and shrubs are to be changed with the changing seasons. Thus the pink of the cherry blossom will in due course be-

come the lovely white and purple of the graceful *Wistaria*. Naturally, the cost of these models will be very great. In addition to this and other horticultural attractions on small scales, a large section of the exhibition grounds is to be arranged in two large gardens after the style prevalent among the highest class of Nippon's gardeners. The first of the areas to be so treated will extend over some 100,000 square feet, while the second is to cover an almost equally large space. Large trees, bridges, and houses, quite complete, and the very rocks to be used for laying out the gardens are being sent from the Island Empire of the Far East, so as to reproduce a true and typical effect. When visitors regard the final result of all this care, the public will have further evidence of the fact that, if 'genius is the art of taking pains,' it is amply possessed by Japan."

THE BRENT VALLEY BIRD SANCTUARY.—Considerable interest has been aroused by a leaflet which the Selborne Society recently reprinted, upon the Brent Valley Bird Sanctuary. It dealt principally with the methods of attracting wild birds by means of nesting boxes. Mr. WILFRED MARK WEBB, hon. general secretary, has written a second article for the March number of *The Country Home*, dealing with the nests that are built naturally in the enclosure which is maintained by his society.

HEREDITY OF SEX.—Current theories of the heredity of sex are based on the assumption that gametes (sexual cells) are pure with respect to sex characters. By this is meant that a gamete may carry the factor for maleness or the factor for femaleness, but not both. As against this view, Dr. KEEBLE proposes, in a contribution to *Nature* (February 24, 1910), a theory based on the assumption that the phenomena of sex are due not to a single pair of allelomorph characters, but to two independent pairs of characters, namely, maleness (M.) with its allelomorph, absence of maleness (m) which constitute one pair, and femaleness (F.) with its allelomorph (f), which constitute the other pair. M.m. and F.f. being independent of each other, representatives of both pairs occur in every gamete. All gametes are, therefore, of one or other of the following sex constitutions: MF, M.f, mF or mf, and all zygotes produced by the pairing of such gametes are of one or other of the nine possible gametic constitutions which may result from the pairing of these four types. The hypothesis is worked out in considerable detail, and examples are given of its application to biological facts, such, for instance, as the absence of sexual reproduction in various groups of fungi, and the nature of the spores produced by homosporous and heterosporous Ferns. The high rate of mortality which accompanies spore-formation may be due to the inevitable reappearance of combinations of sex characters which a given plant has ceased to tolerate. It is also suggested that the hypothesis may throw light on such facts as prepotency, partial sterility, heterostylism, and the apparently excessive production of pollen and ovules.

GARDENING IN BERMUDA.—On the 26th ult. Lord CHEYLESMORE opened a Crocus show, in connection with the St. Mary's Guild of Total Abstinence at Plaistow. About 2,500 bulbs in flower were shown—the best of about 6,000 which were given mainly to the children of the parish in November last. Lord CHEYLESMORE, in the course of a brief address, said that on his estate in the country there were 400 gardens let out to cottagers, who had a yearly flower show. When he was in command of a battalion of the Guards at Bermuda, 20 years or so ago, he sought some recreations for the men and gave to each company a plot of land to

cultivate. He and his officers also had a plot, and, though he was told they could not grow Carnations there, he did so. But he was not so successful with Strawberries; big bushes grew but not a single Strawberry. They however, got two crops of Potatoes, and just as their third crop—one of Melons—began to show fruit the battalion was ordered home and they had to leave the fruit for the natives.

PUBLICATIONS RECEIVED.—*Kearton's Nature Pictures*, with descriptive text by Richard Kearton, F.Z.S. (London: Cassell & Co.) Price 1s. net. — *Gardens of Delight*, a supplement to the *Manual of Horticulture*, issued by Kelway & Sons, Langport, Somerset. Price 6d. — *The Midland Agricultural and Dairy College*. Bulletins: The Report on Field Trials on the Manuring of Seeds Hay, in 1909; Report on Field Trials with Varieties of Mangels, in 1909; Results of Field Trials on the Manuring of Swedes, in 1909. — *Plant Pests*, by "The Woodlark." (London: W. Speaight & Sons.) Price 3d. — *Two Essays on Sweet Peas and How to Grow Them*, by Walter A. Voss, F.C.S., and W. F. Emptage. (London: W. Speaight & Sons.) Price 1d. — *Native Guano*. Result of its practical applications in the farm and garden. (The Native Guano Co., Ltd., London). — *The Women's Agricultural and Horticultural International Union*. Monthly Leaflet by Mr. T. Chamberlain. (Kettering: Chas. T. Hart, Lindsay Street.) Price 2d. — *Bees, for Profit and Pleasure*, by H. Geary. (London: W. H. & H. Collingridge.) Price 1s. net.

NURSERY NOTES.

CYCLAMEN AND PRIMULAS AT READING.

A WEEK ago I paid a visit to Messrs. Sutton & Sons' trial grounds at Reading, where these plants are grown, not for purposes of display, but for the simple though very necessary and practical expedient of seed production. Nevertheless, from the spectacular point of view, the display is a remarkable one, for there are some 14,000 or 15,000 plants of each genus. The cultural methods that obtain are adopted for the purpose of harvesting as large a crop of seeds from the plants as possible. Therefore, such matters as seed sowing and the subsequent treatment of the plants are carried out on lines which experience has proved to be the best for the purpose, and whilst this may involve method and specialisation in a marked degree, it is characterised by simplicity.

To pass in brief review, firstly, the Cyclamen, I can but remark upon the brilliance or the purity of the scene, as the sheets of colour, white, salmon, crimson, and rose, the product of many thousands of expanded, highly-poised flowers, meet the eye. I noted, too, their fine form and substance, their giant proportions and great range of colour. Recalling to mind the original wild species, *C. latifolium*, of Palestine and Greece, I marvelled at the change which has taken place. How long the wild species remained after its introduction to cultivation nearly 180 years ago, before the florist seriously took the plant in hand, we do not know. That the greatest advances have been made during recent years there is no doubt. In this work of improvement Messrs. Sutton have ever taken a leading part, with the result that their strain has a world-wide reputation for its high excellence.

It was in 1884 that Messrs. Sutton first introduced and catalogued their epoch-making variety, *Butterfly*, a flower remarkable for its spotless purity, its fine substance and form, and its elegantly-marbled leafage. *Salmon Queen* followed in 1895; while the fringed varieties made their debut in 1900. The latter, the result of repeated crosses with the *Papilio* strain of Cyclamen, constitutes one of great beauty and attractiveness. Most brilliant of all among modern varieties are those named *Vulcan* and *Phoenix*, the former of a striking hue of rich crimson, a really remarkable shade when

touched by occasional sunlight. Phoenix is of cherry-crimson hue and very distinct and beautiful, and the two contrast admirably with the unrivalled purity of Butterfly. The "Giant" strain, which the firm has done so much to improve and popularise, is probably unique, and to-day is seen in the purest white, cherry-red, mauve, pink, salmon, crimson, crimson and white, and other shades. A matter which is receiving considerable attention is fragrance: this quality has already been implanted in many varieties in conjunction with marked improvement as regards size. Much more, however, remains to be done in this direction, and a few more years must elapse before the finest of the giant races of these flowers as understood at Reading to-day have this welcome attribute. Then, again, much remains to be done before those brilliantly flowered varieties, Vulcan and Phoenix, attain to the present size or substance of the giant form. Yet these are some of the many ideals towards which the hybridist is working, and, having fixed for himself that high standard of excellence, it is but a question of years before the goal will be reached.

Turning to the Primulas, these greatly exceed the Cyclamens in importance, and they entail an increased amount of labour and watchfulness because of the infinite variety that obtains. Roughly, there are some 90 varieties cultivated, not all of which are catalogued or even regarded as worthy of this hall-mark of merit. All are grown, however, for some reason—for experimental work, for observation, or the possession of some particularly good outstanding property which it is desired others should possess. The rich and varied display of colour contributed by the plants, each having its one large, compact head of blossoms lifted well above the foliage, mean much to the average gardener, for he marvels at that fineness of judgment and skill which enables the cultivator to fix that perfect balance and uniformity betwixt foliage and flowering which is seen on every hand. Disproportionate leaf growth cannot be found in a single instance in the Reading collection.

In their endeavours to secure a maximum crop of seeds, Messrs. Sutton leave nothing to chance, for every flower on every head is fertilised by hand, the plants being gone over several times, so that each flower may be dealt with as it is ready. In this work of pollinating the foliage, the utmost care, even to the most minute details, is taken, and the collection, by reason of its remarkable trueness to stock or variety, affords eloquent testimony to the way in which the work is done. From the business point of view, the vagaries of certain stocks or varieties are closely studied, hence it is known with almost unflinching accuracy to what extent any particular stock will breed true or otherwise.

It may be mentioned that the salmon and nearly-allied shades of colour require a greater degree of artificial heat to bring them to perfection. Coral Pink, which, by the way, is a pure sport from Crimson King, and one of the most exquisite of Primulas, is an instance of this, and there are others to which a similar remark applies. Royal White is regal in every way, in size of truss and flower in particular. Brilliant Rose is good for anything or anybody. Brilliant King and Crimson King, as seen in a gleam of sunlight, baffle description. Improved White has a flower similar to the old Snowdrift, the plant being a stronger grower. Then, in turn, I inspect the remarkable "Duchess" hybrids, and note the unmistakable influence of these in that most valuable race of Star Primulas (*P. stellata*), and which also embraces pink, ruby, dark and pale blue, and many other shades. It is interesting to note how frequently an almost identical flower may be repeated either in the plain, fern-leaved or palmate-leaved types, or even in all of these, the great majority being absolutely fixed and capable of yielding almost cent. per cent. true to their kind.

The giant strains, while embracing salmon-pink, white, and crimson, which constitute an imposing array, also include early and late pink-

flowered forms, which are reproduced true from year to year, and others which, on expanding, are of pale pink, but which deepen in colour with age. To the gardener or florist decorator who has to provide pink-flowered varieties of these plants over extended periods of time, these early and late-flowered types will possess a special value. *E. H. Jenkins.*

CULTURAL MEMORANDA.

FREESIA.

This plant possesses three essential qualities that make it invaluable to the amateur—the flowers are handsome, fragrant, and they last a long time on the plant, or in water. A single bloom will scent a whole house, and the blossoms do not all go off together, so that one can pick off the dead ones and retain the others. The more forward buds will also open in water, and it is no uncommon thing for the blooms to remain fresh, from first to last, for over a fortnight. In spite of the fact that Freesia seed is now catalogued by many seedsmen, few people seem to raise their stock in this manner. Yet the flower-stems and foliage come much stronger, and can be grown without any form of support, which is rarely the case with Freesias produced from bulbs. They can also be had in bloom quite as soon from the time of making a start, and the flowers, instead of being ready only at Christmas or the New Year, can be obtained as early as October. April is the best time for making a start with Freesia seed, although one can sow it at almost any period of the year. Spring-sown plants, however, have the benefit of standing out-of-doors all the summer, and this treatment is essential if the best possible results are to be obtained. The seed must be sown in the flowering pots (32's or 48's are best), as the plants will not bear transplanting. A compost consisting of three parts fibrous loam (broken small), one part well-decayed cow manure, and half a part each of leaf-mould and sharp sand, should be prepared, and the pots filled to within 2 inches of the rim with the mixture. Upon this sift a little of the same material and sow eight or ten seeds to a large pot, covering with fine soil to the depth of one inch. Shake down firmly, give a good watering, and place the pots near the glass, putting a piece of sheet glass over each in the usual way to check evaporation. If the weather is very bright, shading with brown paper during the middle part of the day is beneficial. The pots should be kept in a temperature of 60° to 70° Fahr., but it is preferable to err on the side of coolness than in the other direction, since coddling must be avoided. Germination takes place in five or six weeks, and directly the little spear-like shoots appear the sheet-glass must be removed, the pots being kept as near as possible to the roof to prevent drawing. When the plants are an inch in height, they may be placed out-of-doors, where they will get some sun, but not all day long. Behind a wall is a good place, but there must be no actual shading or covering above the plants, except in very wet weather, when a little protection during heavy storms is advisable. The plants may remain there until they are again brought under glass in September before frost occurs, when they should be given a temperature of 55° to 65°, and be kept on a shelf near the glass. When the bloom-buds appear in October, weak liquid manure may be given, but not chemical manures. The plants should bloom from October onwards, and, if properly grown, the blossoms will be larger and more numerous, as well as more robust, than any produced from bulbs planted in late summer and kept indoors all the time. *East Sussex.*

NOTES FROM A "FRENCH" GARDEN.

We are now clearing the last lot of Radishes in the frames. The Lettuces greatly improve when they have the ground to themselves, and the grower must be prepared to sacrifice the Radishes if the Lettuces require the room before these latter are ready.

We are marketing the first Lettuces eight weeks after they were planted in the frames. Their growth has been somewhat delayed, partly because the soil used in the frames was too wet this season, and partly because of the dull weather experienced since the commencement of the year. The Lettuces planted under the cloches are growing splendidly; they will be ready for the market in a week or so. Their growth is always of a higher standard than those planted in frames, as they are planted later and obtain more light. When the Cos Lettuce, grown conjointly with them under the cloche, requires the room too soon, the grower does not hesitate to cut the Cabbage Lettuces when these are hardly ready, though this case is a very rare occurrence.

The Carrots in the frames require a little ventilation as soon as the Lettuces are marketed, in order that their growth may strengthen. The Carrots should be mulched with finely-sifted, dry soil, to prevent the tops of the roots from turning green. We are sowing beds of "Chantenay" Carrots in the open ground, to form a succession to those sown under the cloches. The beds are heavily top-dressed with decayed manure previous to the insertion of the seeds.

We are now planting Early Parisian Cauliflower in the frames among the Carrots, putting five plants to each light; two against the top and the bottom board, and one in the centre. The main batch of the variety "Driancourt" will be planted in a fortnight's time, four plants being placed under each light. This sort forms bigger heads than Early Parisian, and is of a stumpy habit, which would injure the Carrots if they were set too early. The Cauliflowers are always set very deep, and the soil made firm at the roots. The batch of Cauliflowers sown last month needs constant ventilation to prevent damping off. If the seeds were sown too thickly, the plants may be pricked off under bell-glasses, putting 20 plants in each cloche.

The first batch of Melons is now potted into 3-inch pots, and these have been plunged in a good hot-bed. When they are well established in their new quarters, light ventilation can be afforded at least one half-hour each day. This is very beneficial to their growth, and acts as a preventive against collar rot and canker later in the season. Seeds are inserted each week till March 15, to obtain a succession of plants.

The large grower never sows Melon seeds later than the date stated, and arranges his work to finish planting the Melons early in May. By this method the bulk of this crop is sold by the end of July, after which date the prices are not so remunerative.

The ground where the Lettuces were grown through the winter has been dug, and will be available for Tomatoes in May. *P. Aquatias.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FREESIA FROM SEED.—Being interested in Mr. H. Juniper's note (see p. 124), I am sending you a few flower-spikes of Freesia from plants raised from seeds sown on March 4 last, thus showing that they are easily flowered within 12 months from sowing the seed. *F. E. Stokes, Ven House Gardens, Sherborne, Dorset.*

FREESIA ARMSTRONGII.—The English history of this plant, as I know it, is a little different from its Dutch history, as told by Mr. Gumbleton, in the *Gardeners' Chronicle*, p. 115. In March, 1898, Mr. W. Armstrong, of Port Elizabeth, brought to Kew a bulb of what he called a pink Freesia, which he had found wild on R. Meteler Kamp's farm, Zuurbon, Humansdorp. It did not flower that year, but it did the next, when I named it in compliment to the finder. A stock of it was soon worked up by means of seeds and bulblets, and in the spring of 1901 there was quite a nice batch of it in flower in the Cape house at Kew. The late Mr. Moon

made a drawing of it, which was published in *The Garden*, May 25, 1901, where its history is recorded. It had then "been in cultivation at Kew about three years, and this year it has displayed itself to the full. . . . The tallest scapes are 20 inches high, with three or four branches, each bearing from six to eight flowers set $\frac{1}{2}$ inch apart, 1 inch long, exactly the same in shape as *F. retracta*, the tube white, with a splash of orange at the base, the segments heavily margined or faced with rich rose, in which there is a suspicion of purple. The plants flower at the same time as *F. retracta*, that is about a month later than the larger-flowered *F. alba*; some of them are now in flower (May 14). . . . It has ripened seeds at Kew, and the seedlings (which had then flowered) are exactly like the parent." Crosses had also been raised from *F. Armstrongii* and other *Freesias*, the best being from *F. Armstrongii* \times *F. Leichtlinii*. This, which was named *F. kewensis*, had orange-yellow flowers with rose-lilac segments. See *Journal of Horticulture*, March 3, 1904. The credit, therefore, of introducing, flowering, and naming *F. Armstrongii*, and of raising the first crosses from it clearly belongs to Kew, and it must be set down as another instance of history repeating itself that Messrs. Van Tubergen, of Haarlem, on receiving the plant in 1901 named it *F. Armstrongii*, and raised crosses from it. W. W.

THE L.C.C. PARKS APPOINTMENT.—The Altrincham Gardeners' Society have noted with pleasure your Editorial remarks in recent issues respecting the London County Council Parks appointment. I am instructed by my committee to send you a copy of a resolution passed at the general meeting of my society on February 25, trusting that you will find space for its inclusion in your next issue. A copy has also been sent to the chairman of the London County Council, also the secretaries of the Royal Horticultural Society and the British Gardeners' Association:—"That this society learns with regret that a military man has been appointed as chief officer of the London County Council parks. Being of opinion that the management of public parks requires the services of an experienced horticulturist, and noting that the gentleman appointed does not, on his own admission, possess any horticultural knowledge, this society of gardeners considers it to be its duty to protest against the appointment." R. Leech, Hon. Secretary.

THE WEATHER IN SOUTH DEVON.—February has been a very wet month in South Devon. Rain was registered on 27 out of the 28 days, the 10th being the only rainless day. The total fall for the month was 5.68 inches, which, with the January fall, makes over 10 inches for the first two months of the year, or about a third of the average annual rainfall. Wyndham Fitzherbert, Kingswear.

GLOXINIAS UNDER COOL TREATMENT.—The exhaustive article on Gloxinias in the *Gardeners' Chronicle* for February 19, leaves nothing to be desired in showing how Gloxinias can be grown at their very best. Still, they can be cultivated in a perfectly satisfactory manner under much cooler conditions, and I find them quite amenable to ordinary greenhouse treatment. Where associated with tuberous-rooted Begonias, they form a very pleasing feature in the latter part of the summer. For the raising of seedlings a considerable amount of fire-heat is necessary to bring them safely through their earlier stages. For this reason, when there is only a greenhouse temperature available, the better plan is to commence with one-year-old tubers about the size of a penny. Such tubers are to be purchased very cheaply during the dormant season, and they can be sent by post for a few pence. Mixed seedlings from a good strain will give a pleasing variety. These tubers may be potted early in March in a compost made up of loam, leaf-mould and sand. I prefer to start the tubers in small pots, and as soon as the roots are active shift them into their flowering ones, which are from 5 to 6 inches in diameter. The plants will do well in an ordinary garden frame if shaded from bright sunshine. Of course, under such cool conditions, the blooms develop much later than when grown in heat, as the earliest flowers do not open till July. During August and the first part of September they are at their best. W.

MR. C. BOGUE LUFFMANN AND FRUIT-TREE CULTURE.—There have appeared in your columns from time to time, in recent numbers, contributions from the pen of Mr. C. Bogue Luffmann, dealing with various physiological aspects of fruit-tree culture. Mr. Luffmann's style of composition is, for the most part, obscure; and it may be that his writings contain much that must surprise your readers, simply because of its confusing phraseology. What strikes one first is that Mr. Luffmann's articles are full of assertions stated in the most dogmatic way, without, in any case, giving reasons for maintaining his statements. Had they been deduced from well-recognised laws, one could not complain, but when he says, e.g. (January 29, p. 65):

"Roots made when a tree has young, half-grown, mature, or no leaves, are all of different characters and values,"

one is entitled to ask for particulars. Has he examined a large number of roots in these four different stages? What facts has he learned from such examination of each variety, that force him to believe in this correlation of leaf and root, and that they are of different characters and values? On the occasions when he uses anything like argument, I find it quite impossible to connect cause and effect, as, e.g., in the following:

"The most fruitful type of light root is made in autumn. Roots made in a falling temperature are of a more complete and fruit-yielding nature than those made in a rising temperature, because in the one case the leaves are a robbing, and in the other, an improving factor."

Another striking feature is Mr. Luffmann's mania for differentiation. Thus we have roots (of the same individual tree) in countless variety, all with most important functional differences. We were prepared to read of tap-roots and fibrous roots, but here we learn of heavy roots, light roots, roots made when the leaves are young, those made when there are no leaves, those made in a rising temperature, and so on ad infinitum. We must, moreover,

"contrast wild with domesticated root-systems, note the variation in light roots at all seasons, and make a careful estimate of every tree before deciding on any form of root-pruning or soil-dressing."

Some of the statements that he makes as to the functions of roots perplex one, amongst others that autumn growth of roots elaborates buds and furnishes the material requisite to leaves and buds at the birth of spring. We had understood that the function of the root was to obtain crude food, in solution, from the soil and to send it to the leaves, where assimilation was carried on, and that the products of assimilation alone were used in feeding growing buds and leaves; and the idea of the elaboration of buds being one of the functions of the root is novel to us. To those who had learned to distinguish between crude fluid from the soil and the plastic products of assimilation, Mr. Luffmann's use of the word may appear ambiguous. He, however, declares (February 5, p. 83) that:

"Trees, having two 'stomachs'—leaves and roots—can absorb and digest, according to their shape and capacity for forming and circulating sap."

It is, therefore, clear that he believes that the soil-fluid undergoes some organic change in the root itself, and according to this all sap is plastic. He writes:

"The composition of sap changes in proportion to the amount of water evaporated through the leaves and bark. When the atmosphere is dry, every part of the tree wastes moisture, and becomes in some degree more mature. Strong and impotent trees develop too much sap; the fluid from the roots passes up, and the elaborated sap from the leaves passed down at such a rate that there is insufficient time for change in the chemical condition of the bark and the leaves and the buds to ensure maturity or the power of forming flower-buds."

It is surely a much simpler explanation that a vigorous root-system, by sending up soil-fluid in excess, puts the top to the necessity of dealing with it, and therefore of producing (from the reserve materials already there) shoots and leaves in which assimilation can be carried on; and that a dry atmosphere, by increasing transpiration and the powers of assimilation, and by diminishing growth of leafy shoots, enables the leaves to prepare a surplus of starch, &c., which can be used in feeding fruit, and that fruit-buds are, in consequence, laid down. Mr. Luffmann goes on to say:

"When the sap is drawn from light roots and ascends slowly, it holds the richest supply of fruit-forming elements, and makes a deposit in the tree most favourable to fruit-bearing."

The answer to this is a corollary of what has been stated above. The supply of crude sap to the leaves from a sluggish root-system does not call for the production of abundance of leaves, and therefore the surplus plastic materials are available for feeding fruit; fruit-buds are, accordingly, formed. In hardly any particular do I agree with Mr. Luffmann, but space does not permit of my discussing his views further. My desire is simply to point out to your contributor that, in advancing views as to horticultural practice, purporting to be founded on physiological principles, he must conform to generally-accepted teaching. If he departs from this, he must state clearly the facts which lead him to take these opposite views. A. A. P.

—My articles were intended for fruit-growers, and I freely concede that my phraseology may not be strictly scientific. I am charged with giving insufficient reasons, and yet I feel that I have crowded my articles with reasons, for I am saying a great deal within a limited space. Surely some laws may be unrecognised or but little understood? In stating that roots formed at different seasons of the year have different characters and values, I repeat it as an incontrovertible and demonstrable fact. And as to the enquiry, "Has he examined roots at different stages?" I reply, "Yes; and in large numbers." I am accused of "arguing." I do not. Nor am I "dogmatic." I have made some statements of fact which may improve orchard practice. Your correspondent is impatient that I find different functions in roots. I am indifferent where he learns if he comes by the truth. He may succeed in proving me wrong by a yard on paper, and I in proving him a mile out in his orchard. A. A. P. has read me with some impatience, or why does he object to my stating that we stand to gain by studying the roots of trees in a state of nature? I venture to say that the statement is neither obscure nor superfluous. I had thought these were the days for Nature study, and that the gardener might claim all Nature for his province. I must thank A. A. P. for such diligent examination of my articles; but I object to his calling them "obscure" and "ambiguous," and at his growing "perplexed" because I do not write exactly as he had thought. If I had nothing enlightening to offer, I should not presume upon your space. A. A. P. offers a "simpler examination" of the root-system. It may stand, as a paraphrase; but, with all deference, I cannot see that it may be as easily grasped and put to use by the working gardener. I welcome this criticism, but I do not allow A. A. P. the right to order me to "conform to generally-accepted teaching." Is this the utterance of an unbiassed student of Nature and a servant of his fellow-men? I may be wrong, and, if proved so, will admit as much. Your correspondent should know that he asks for a book where I am limited to giving a few hints on as many inches of space. And my object? The outdoor fruit trees of these islands are scandalously mismanaged, and the purely scientific men are incapable of putting them straight. The jealous war between science and practice will go on, since it is almost impossible for a man to be master in both fields. I claim to be no more than a successful tree-culturist, and if A. A. P. is able to improve on what I advocate in the way of advancing commercial fruit-growing, I shall gladly yield to him, and I hope, Sir, you will give him the fullest opportunity to make the course plain. The teacher is rare, and there is no end of work to be done. If the working gardener and fruit-grower have not found my writings obscure or impracticable, I shall be satisfied, for I do not look beyond their wants. C. Bogue Luffmann.

AN ONEROUS POST.—A man, 22 years of age, has just been offered a situation in Hertford. He has had seven years' experience in two gardens, from both of which he has excellent references. After getting these particulars from him it was thought he would suit, and the following startling offer was made him. Hours, 6 a.m. to 6 p.m., breakfast to be taken before starting each morning; one half-hour allowed for dinner; wages, 17s. a week, no bothy, and lose all absent time. This offer did not come from a poor market gardener, but from someone claiming to be a gentleman, through his gardener. I wonder if this heartlessness has ever been beaten. It is the hours—11½ per day—that particularly impress me. S. Martin.

PRUNING WALL TREES THE FIRST YEAR AFTER PLANTING.

—To begin at the beginning, the leading shoots of young trees obtained from the nurseries in the autumn should not be cut back to within 6 or 8 inches of their base, as was done up to within a few years ago. On the contrary, the young shoots should be left their full length, except any that have grown excessively strong; these may be topped in order to promote a balance of growth in the trees. The first spring, after planting the young trees, when the sap begins to rise, bend the unpruned shoots towards the ground and secure them to the trellis or wall with Raffia or nails and shreds, as the case may be, in that position, the bend starting from the point whence the first of the young growths is desired to proceed, say 3 or 4 inches from the bottom of the individual shoots. The check thus given to the flow of sap causes a sufficient number of wood-buds to push from each shoot to form a good-sized "fan-shaped" tree the first year after planting. As soon as the buds nearest the base of the individual shoots have pushed into growth, the trees should be cut, or the nails withdrawn as the case may be, and the main shoots spread out on the wall or trellis, after the manner of a hand and distended fingers, secured to the wall in the ordinary way. The young shoots, when developed, must be trained at proper distances over the intervening spaces. This is the extension system of training, and applies to all kinds of fruit trees trained to trellises and against walls. H. W. W.

PROTECTING FRUIT TREES FROM FROST.

Mr. H. W. Ward's timely note on this subject, p. 132 in last week's issue, recalls a thoughtful paper by Mr. John Saul, of Durdham Down Nursery, Bristol, dated August 29, 1850, and printed in vol. v. of the—as it then was—*Journal of the Horticultural Society of London*. This paper, which is entitled, "On Retarding the Blooming of Fruit Trees," was apparently inspired by some remarks on this subject by Mr. Errington, in the *Gardeners' Chronicle* of April 27 of that year. The writer first draws attention to the fact that, in their native countries, the Apricot and Peach are subjected to intense heat during the summers, followed by extremely cold winters, under which conditions the growth of the trees becomes thoroughly hardened, and suffer the long cold of the winters undamaged. The short springs, with moderate night frosts, are there soon over, and by the time the fruit blossoms are fully expanded, there is no further danger of injury by frost, and abundant crops result. The writer proceeds to advocate a stricter adherence to the conditions under which these trees grow naturally, by retarding their blossoming in the spring, instead of hastening it, as is unwittingly done by means of night protection. The essayist points to the advantages derived from dry autumns, when growth becomes suspended early, and the shoots have ample time to mature before winter sets in. As our climate is usually unkindly in this respect, Mr. Saul strongly recommended that our fruit borders should be protected from wet—a cultural detail, apparently, then practised by some gardeners, but not so generally as its obvious advantages warrant. At the end of February the trees are pruned and nailed, and from this time the sun gains daily in power and duration. The walls against which the fruit trees are trained absorb much solar heat by day, and radiate it by night, bringing the Apricots and Peaches into bloom in advance of their season. Often while the trees are in bloom cold weather returns, accompanied by severe frosts, piercing winds, sleet, &c., which so disastrously affect the fruit blossoms. This, as he says, constitutes a bad fruit season; the reverse of which is promoted by a severe winter and a cold, backward spring, having little or no sunshine. From the middle of February, the essayist advocates protecting the trees and walls from every ray of sunshine up to the time the trees are fully in bloom, exposing them all night and during the mornings and evenings to the cold, be it never so severe, whether wind, sleet, or frost. This procedure, and especially the exclusion of the sun's rays from the walls, will, he claims, retard the blooming, without weakening the blossoms, to a much later period than many might be led to imagine. Mr. Saul very properly insists that the transition from retarding to affording protection must be gradual but steady. Once the trees commence to expand

their blossoms, they must be protected. The kind of protection recommended is canvas, or some similar material, which would effectually exclude the sun's rays whilst retardation is going on. Spruce Fir branches, &c., however useful in the old system of protection, would not do here. The canvas would also be found a better protection against the unpropitious elements during blooming time than branches of Coniferous trees could be. A. C. Bartlett.

PRIMULA FORRESTII AND OTHER CHINESE SPECIES.

—We have read with much interest the note by Mr. Milner which appeared on p. 139 in your last issue, and are glad to note his success with *Primula Forrestii*. With him, we regret that Mr. Reginald Farrer had to mourn the loss of his plant. Perhaps our experience, as introducers of this and other new *Primulas* of last season, may help to prevent further losses. *P. Forrestii* does not love too much moisture, but it does love lime. Its native habitat is among the limestone rocks and crevices of the Yunnan Alps, where it is found at an altitude of from 9,000 to 11,000 feet, and some of the specimens from which our Mr. Geo. Forrest collected seed were, in his opinion, 100 years old. That it is quite hardy (though easily injured by excessive moisture) is proved by our own experience and that of others. At our Sealand Nurseries, close to the estuary of the Dee, and exposed to all the wild Atlantic weather, we have a large batch growing quite without protection, save that afforded by a wood. Last year we planted two beds, the one raised and dry, the other on the level and damp. Those on the former bed came through the winter quite safely, while those on the latter showed serious signs of discontent, and suffered accordingly. *P. Bulleyana* is, on the contrary, a moisture-loving plant, revelling in the same conditions as *P. japonica*. *P. Littoniana*, though less robust in growth, is equally hardy, and does well under similar conditions. *P. malacoides* should prove hardy in the South of England; but with us it needs protection. A bed planted side by side with the afore-mentioned species, after surviving the winter, succumbed to the winds of March. Bees, Ltd.

GALANTHUS ELWESII AND OTHER SNOW-DROPS

(see pp. 106, 124) I agree with those who state that their experience with *Galanthus Elwesii* is satisfactory. I have grown it for a number of years, and it is not nearly so reliable as *G. nivalis*, which is, after all, the most dependable of the Snowdrops. *G. Elwesii* appears to prefer a poorer soil than *G. nivalis*, and a sloping bank, facing south, is better for it than a place on the level in good soil. I have had *G. Elwesii* from many of its habitats, but while the stocks vary considerably in stature, size of flower, and breadth and form of the segments, they are practically all similar in constitution. The hybrids between *G. plicatus* and *G. nivalis* are enduring plants, as a whole, and the two forms of *G. n. Imperati*, both sold as the variety *Atkinsii*, are good growers also, although they do not increase quickly with me. *G. Ikarie* is not trustworthy with me, and *G. plicatus* sometimes fails unexpectedly. By the way, the Snowdrop disease (*Botrytis galanthina*) has not troubled me much in my present garden as yet; whereas, in my former one, which, being close to the sea, was a little earlier, it wrought considerable destruction with some of my Snowdrops. *G. latifolium* never lived long, and the apparent hybrids, called *G. byzantinus*, died off after a short time. S. Arnott, Sunnymead, Dumfries.

SOCIETIES.**ROYAL HORTICULTURAL.****Scientific Committee.**

FEBRUARY 22.—Present: Mr. E. A. Bowles, M.A., F.E.S., F.L.S. (in the Chair). Dr. A. B. Rendle, F.R.S., Dr. J. A. Voelcker, M.A., F.I.C., Messrs. A. Worsley, J. W. Odell, A. D. Michael, W. Fawcett, J. Douglas, J. Fraser, L. Crawshaw, W. Hales, J. T. Bennett-Poë, F. J. Baker, E. M. Holmes, R. H. Curtis, H. J. Veitch, R. Hooper Pearson, and F. J. Chittenden (hon. secretary).

Azalea gall.—Mr. L. CRAWSHAY showed a specimen of the gall on *Azalea indica* caused by *Exobasidium japonicum*. (See *Journal*, R.H.S., xxxiv. (1908), p. 45.) Several examples of this

gall have been received lately, and the disease would appear to be spreading. The galls should be picked off and burned as soon as discovered.

Cyclamen cornu.—Messrs. JACKMAN & SONS at a pan of *Cyclamen coum album multipetalum*, a form differing from the type in having seven or eight petals instead of five, so that the flower appeared much rounder than usual.

Acacia dealbata.—Mr. WORSLEY remarked that he had noticed in Portugal two forms of this plant, one having a smooth bark somewhat silvery in colour, the other rough. There seems to be no record of these variations, and the flowers shown exhibited no marked variation.

Alleged rust-preventing wood.—Dr. VOELCKER enquired whether any member could give any information concerning a Formosan wood which he exhibited, called in the vernacular "Sianlam," which it was alleged had the peculiar property of preventing the rusting of iron and steel. Dr. Henry had informed him that he had known a wood in Formosa under that vernacular name. Shavings of this wood were steeped in water so as to extract a gummy secretion, which Chinese ladies used for dressing their hair, but he had never heard rust-preventing powers ascribed to the wood. Mr. HOLMES took the specimen shown in order to examine it further. Dr. VOELCKER also made some remarks upon variation in *Primulas*, said to be correlated with different soils. The Committee desired to see specimens if possible.

Lichens on Azalea mollis.—An enquiry with respect to the destruction of lichens (*Parmelia physodes*) on *Azalea mollis* was received from Fleet, Hants. It was recommended that the plants should be sprayed with a solution of copper sulphate (1 lb.) in water (25 gallons), while the plants were leafless.

Malformation of Primula sinensis.—Mr. L. CRAWSHAY reported that he had examined the specimen of *P. sinensis* (stellata) shown at the last meeting, and found at the base of the umbel two green bodies, which appeared to be very greatly reduced and aborted inflorescences. The linear segments which formed part of these abortions probably represented perianth pieces, the terminal knob on each possibly representing the epipetalous stamen. At the base of these segments, arranged indefinitely owing to the distortion of the placenta, were numerous sessile bodies, probably representing ovules. Mr. CRAWSHAY showed drawings in illustration of his report.

Malformed Cypripedium.—From the Lord AVEBURY, P.C., came specimens of *Cypripedium barbatum* malformed. One flower showed the anterior sepals completely divided. They were referred to Mr. CRAWSHAY for examination.

LINNEAN SOCIETY.

FEBRUARY 17.—A meeting of the Fellows was held on the above date, Dr. D. H. Scott, M.A., F.R.S., president, in the chair.

Mr. W. T. SAXON gave an account of his recent investigations upon the anatomy of the genera *Widdringtonia*, Endl., and *Callitris*, Vent., of which the following is an abstract:—

Evidence is brought forward in this communication to show (i.) that *Widdringtonia* and *Callitris* do not conform to the "Cupressineæ" type; (ii.) that *Widdringtonia* cannot be merged in the genus *Callitris*, but must rank as a distinct genus.

(i.) The chief points in which these two genera differ from the Cupressineæ are as follow:—

(a) The position of the archegonia. In Cupressineæ these are found at the apex of the prothallus, in *Widdringtonia* and *Callitris* never at the apex.

(b) The multinucleate prothallus cells.

(c) The development of the proembryo. Eight free nuclei are formed in these genera, and the proembryo fills the archegonium.

(d) At least three embryos may be formed from a single proembryo.

Callitrineæ is suggested as a tribal name to include these two genera (possibly also *Actinostrobus* and *Tetraclinis*).

(ii.) Both morphological and anatomical differences are pointed out between *Callitris* and *Widdringtonia*, which seem more than sufficient to warrant the retention of *Widdringtonia* as a separate genus.

Of the morphological differences, the more important of those brought forward for the first time are:—

(a) In Widdringtonia about 64 potential megaspore mother cells are formed at the base of the nucellus. In Callitris about two such cells are found, half-way up the nucellus.

(b) The number and arrangement of the archegonia differ materially in the two genera.

(c) The microsporophyll normally bears four sporangia in Widdringtonia, three in Callitris.

Of the anatomical differences, the most important is the occurrence of thickenings of the cell wall in connection with the bordered pits in both the wood and the transfusion tracheids of Callitris; these are not found in Widdringtonia.

A discussion followed in which Prof. FARMER, Dr. STAFF, and the PRESIDENT engaged.

Mr. GEORGE MASSEE, F.L.S., followed with a lantern demonstration of his researches, entitled:

EVOLUTION OF PARASITISM IN FUNGI.

To understand clearly the evolution of parasitism, it is important to grasp a fundamental point in the evolution of fungi generally. The most primitive forms were aquatic, and reproduced by zoospores, which necessitated the presence of water to secure their dispersion. As the fungi gradually took possession of dry land, a second asexual or conidia form of reproduction, suitable for dispersion by wind, &c., was gradually evolved. This supplementary conidial condition is always the form that has assumed a parasitic condition, the older sexual phase remaining as a saprophyte and developing when the host is exhausted. Parasitism is mainly the outcome of opportunity, and the fact that fungi present all stages of parasitism, and that a saprophytic fungus can be educated to become a parasite, proves that parasitism is an acquired habit. Incipient or imperfectly evolved parasites promptly kill the host, and consequently curtail the period of their own existence, as *Pythium De Baryanum*. A higher stage of parasitism is reached by many of the rusts and smuts, *Ustilago avenae*, &c., where the host is attacked as a seedling, and is stimulated to an unusual condition of growth throughout its normal period of growth. More advanced parasites show a tendency to arrest the production of spores and conidia, and to perpetuate themselves by perennial mycelium located in some perennial vegetative portion of the host (root, tubers, &c.) or in the seed. In the most highly-evolved parasites reproductive bodies are entirely arrested, and the parasite is perpetuated by hibernating mycelium only.

ROYAL METEOROLOGICAL.

FEBRUARY 22.—On this date the society held its first meeting out of London, in the physical laboratory of the Manchester University: the president, Mr. H. Mellish, occupied the chair. Dr. Hopkinson, the vice-chancellor, expressed the gratification the University felt at receiving the Fellows of the Society.

Dr. A. Schuster also welcomed the Society, and said that although meteorology in itself might be regarded by some as a small part of physical science, yet it was intimately connected with a number of other subjects.

The first paper, read by Dr. W. Makower, was on the "Investigation of the Electrical State of the Upper Atmosphere made at the Howard Estate Observatory, Glossop."

Mr. A. W. Harwood read a paper on "The Results of 25 Registering Balloon Ascents made from Manchester on June 2 and 3 last."

Messrs. R. G. K. Lewippert and R. C. Rless read a paper on "Line Squalls and Associated Phenomena." The discussion on this paper was deferred until the meeting of the Society in London on April 20.

THE NATIONAL FRUIT GROWERS' FEDERATION.

FEBRUARY 23.—The annual meeting of the National Fruit Growers' Federation was held on this date at the Royal Horticultural Hall, London. Mr. C. S. Martin (Teddington) presided.

The annual report stated that the total membership now stood at about 500, an increase of about 100 upon the year. Representations had been made to the Board of Agriculture to the effect that the present was an opportune time to carry out the first recommendation of the Depart-

mental Committee of the Board of Agriculture and Fisheries appointed by Lord Onslow on the condition of the fruit industry, viz., "That a special sub-department of the Board of Agriculture and Fisheries be established to deal with matters connected with the fruit industry. That there be two branches of such sub-department, (a) a bureau of information, and (b) an experimental fruit farm." The Council were of opinion that if this recommendation were carried out, practically all the other valuable recommendations of the committee would follow as a matter of course.

Mr. C. S. Martin was unanimously elected president for the year, and the other officers were reappointed.

A discussion took place with reference to the scale of commission charged by fruit salesmen, a paper being read on the subject by Mr. F. I. Neame, who complained that, in London, commissions were much too high. The matter was referred to the committee.

Obituary.

CHARLES SMITH.—Mr. Charles Smith, who died recently at Guernsey, was the head of the firm of Messrs. C. Smith & Sons, of Caledonia Nurseries, St. Peter Port. He was in his 80th year, and was of English birth, but had resided in Guernsey most of his life. He was formerly



THE LATE DUGALD MCCORQUODALE.

head gardener to General Slade, then the Governor of Guernsey, and made the grounds at Castle Carey, the official residence, one of the sights of the island. General Slade at his death left his valuable collection of plants to Mr. Smith, and this formed the nucleus of the nursery at La Couture, specially known for the collections of *Bambusa*, of *Rhododendrons*, of the smaller *Conifers*, and of *Berberis*, &c. Mr. Smith had one of the most complete collections of *Nerines* even in Guernsey, and it included a large number of his own raising. The orchards are the best in the island. They are especially noted for an immense *Chaumontel* Pear tree, which covered all one side of a very large building to the height of about 30 feet, and from which many hundreds of Pears of the largest size and best quality were annually gathered. The nurseries will now be carried on by deceased's only son, Mr. Harry Smith, in whose hands the active management has rested for some years past.

JOHN ASHBY.—The death of Mr. John Ashby, gardener to C. H. Palmer, Esq., of Bozodown, Whitchurch, Reading, occurred suddenly on the 20th ult. Mr. Ashby had been through the gardens in company with his employer, and when returning home dropped down and expired

within six yards of his cottage door. He laid out the grounds and gardens at Bozodown 40 years ago last September, just before the mansion was erected. He was then in the employ of Mr. William Fanning, but on the death of this gentleman the estate passed into the ownership of Mr. James Russel King, and some five years ago it was purchased by Mr. C. H. Palmer. Mr. Ashby was 72 years of age. The remains were interred in St. John's Churchyard, Reading.

RICHARD BLAKE.—An amateur horticulturist has passed away in the death, on February 21, of Mr. Richard Blake, of The Elms, Winterbourne Dauntsey, near Salisbury. Mr. Blake was in his 95th year. His favourite plants were Orchids, of which he had a fair collection, including many good specimens of cool-house varieties. Mr. Blake had been associated with the Wiltshire Horticultural Society since its inception, and frequently assisted in making the awards at the annual shows of the society.

DUGALD MCCORQUODALE.—Mr. McCorquodale, a director in the firm of Messrs. Mackenzie and Moncur, Ltd., passed away on the 26th ult., after a long and painful illness, in the 54th year of his age. Deceased was born at Duror, in the North of Argyleshire, and served his apprenticeship in the City of Glasgow. He joined the firm of Mackenzie and Moncur, Ltd., Horticultural Builders, about 30 years ago. By painstaking industry, he obtained rapid promotion, eventually becoming a director of the firm, which he represented in London and the south district for the last 20 years. During this time the firm made immense strides. As director of Messrs. Mackenzie and Moncur, Mr. McCorquodale carried out extensive contracts in England, notably the ranges at Sandringham, Elvedon, Moulton Paddocks, Paddockhurst, Windsor, Dover House, and Welbeck. He was a man of sterling qualities, and his counsel and advice were often sought on account of his wide and varied experiences. He led a strenuous life, throwing his whole energy into everything to which he put his hand. Owing to his urbanity and genial disposition, he made a number of friends, by whom he was highly respected. A man of singularly retiring habits, Mr. McCorquodale, though attending all the principal flower shows, was rarely present at any functions of a purely social character, but in private life he was an entertaining and cheerful companion. Deceased leaves a widow and two daughters to mourn his loss. The remains were interred on March 3 at Nunhead Cemetery, in the presence of his wife and daughters and a vast concourse of friends.

SCHEDULES RECEIVED.

Highgate and District Chrysanthemum Society's exhibition, to be held at the Alexandra Palace on Wednesday and Thursday, November 2, 3. Secretary, Mr. E. P. Fenwick, 31, Harborton Road, Archway Road, N.

Teddington and Hampton Wick Horticultural Society's annual show, to be held on Wednesday, July 18. Secretary, Mr. Francis A. H. Andrews, "Ashville," Cedar Road, Teddington.

CATALOGUES RECEIVED.

KENT & BRYDON Darlington—Farm Seeds.
WM. THOMPSON & CO., LTD., Shipquay Street, London derry—Farm Seeds and Manures.
THE HUMBER FISHING AND FISH MANURE CO., Winchester House, High Street, Hull—Fish Manures.
H. J. JONES, LTD., Ryecroft, Hutter Green, Lewisham—Plants and Seeds.
C. ENGELMANN, Saffron Walden, Essex—Perpetual-flowering Carnations.
KELWAY & SON, Langport, Somerset—Fruits, Flowers, and Vegetables.
COOPER, TABER & CO., LTD., 90 & 92, Southwark Street, London, S.E.—Farm Seeds (wholesale).
THE CHEMICAL UNION, LTD., Ipswich—Canary Guano.

FOREIGN.

WILHELM FEITZER, 74, Militarstrasse, Stuttgart, Germany—Seeds and Plants.
VILMORIN-ANDRIEN ET CIE., 4, Quai de la Mésagerie Paris—Chrysanthemums.
GEORG EGGER, Jaffa, Palestine—Flower Bulbs and Roots from Asia Minor (wholesale).

GARDENING APPOINTMENTS.

Mr. HENRY HENDERSON, until lately Gardener and Estate Manager at Bantaskin, Stirlingshire, N.B., and previously Gardener for 10 years at Crematry House, N.B., as Steward and Gardener to GEORGE JAMESON, Esq., on his estate near Dublin.
Mr. W. COLLARD, for 8 years Foreman at Abbot'sfield, Wiveliscombe, Somersetshire, as Gardener at the same place.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 2.

Another warm and wet week.—The day temperatures have been all above the average, while the night readings have been, as a rule, rather low. On the coldest night the exposed thermometer registered 11° of frost. The ground is now at about a seasonable temperature, both at 1 and 2 feet deep. Rain fell on all but two days, and to the total depth of three-quarters of an inch. Virtually the whole of the rainfall of the week has come through both of the percolation gauges. The sun shone on an average for 4½ hours a day, which is 1½ hours a day longer than is usual at this period of the year. The wind has been on the whole, rather high, and in the windiest hour the mean velocity was 20 miles—direction west. There was again about a seasonable amount of moisture in the air at 3 p.m.

FEBRUARY.

A very warm, very wet, and yet sunny month.—This was a consistently warm February. The first two days were cold, but after that there did not occur a single day when the highest temperature was below the average. Then again, there were only eight cold nights. On the warmest day the temperature in the thermometer screen rose to 55°, which is rather above the average extreme maximum reading for the month. On the coldest night the exposed thermometer showed 15° of frost—also a high extreme minimum for February. Rain, hail, or sleet fell on as many as 23 days, leaving only five days in the month without rain. This is the greatest number of rainy days I have yet recorded here in February. The total depth of the rainfall was 3½ inches, which is 1½ inches above the average for the month. In the last 54 years there have been in Berkhamsted only seven Februaries as wet. On no day was there any fall of snow. Virtually the whole of the rainfall of the month came through both of the percolation gauges. The sun shone on an average for 2½ hours a day, or for about half an hour a day longer than is usual in February. The winds were, as a rule, above average strength, and in the windiest hour the mean velocity reached 25 miles—direction S.E. For only three hours altogether did the wind come from any point between north and east. The mean amount of moisture in the air at three o'clock in the afternoon proved on the whole about seasonable.

THE WINTER.

A very warm, wet, and sunny winter.—This was a very mild winter, in fact, in the last 24 years there have been only four other winters in which the mean temperature has been as high. All three months were warm, and more particularly was this the case in February. On the warmest day the temperature in the thermometer screen rose to 55°, and on the coldest night the exposed thermometer registered 23° of frost. The total rainfall amounted to 8½ inches, which is about 1½ inches in excess of the average. For a short time the ground was, on one occasion in January, covered with snow to the average depth of 3 inches, but there was no measurable fall of snow in either December or February. The sun shone on an average for two hours eight minutes a day, or for twenty-six minutes a day longer than is usual. In the last 24 years there have been only three other winters with such a good record of sunshine.

THE UNDERGROUND WATER SUPPLY.

Since the winter half of the drainage year began in October, the total rainfall has been 14½ inches, or 1½ inches in excess of the average for the same five months in the previous 54 years—equivalent to an excess in rainfall on each acre in this district of 31,445 gallons. At the same time last year there was a deficiency of 145,000 gallons per acre. E. M., Berkhamsted, March 2, 1910.

DEBATING SOCIETIES.

READING GARDENERS'.—The fortnightly meeting was held in the Abbey Hall, on Monday, February 21, the president, Mr. Alderman Parfitt, occupying the chair. The minutes of the last meeting having been read and confirmed several new members were elected. The hon. secretary announced that at Chertsey a gardener and his wife had died almost at the same time leaving a family of six young children. A collection was taken and a sum of £214s. was sent for the benefit of the children. The lecturer for the evening was Mr. John W. Tayleur, B.Sc., of the University College, Reading, his subject being "The Nature and Uses of Manures." Mr. Tayleur gave particulars concerning the different qualities and uses of the various artificial manures. Advice was also given to those desirous of making their own mixtures so that the best results might be obtained at the smallest cost.

BRITISH GARDENERS' ASSOCIATION (LONDON BRANCH).—The next meeting will take place at Carr's Restaurant, Strand, on Thursday, March 10, at 8 p.m. An address will be given by Mr. W. S. Palmer, of Finsbury Park, on "Trees and Shrubs." The following question has been submitted for discussion at this meeting: "Assuming that all plants owe their origin to one common stock, how can we account for two such distinct classes of plants as the Monocotyledons and the Dicotyledons?"

EGHAM GARDENERS'.—The fifth annual dinner of the association was held at the Constitutional Hall, Egham, on Thursday, February 24. The president, Mr. W. G. Rigden, presided. A large company was present. In submitting the toast of "Prosperity to the Association," the president said the society was in a highly prosperous condition. It was perfectly evident that in the future no hall in Egham would be large enough to hold the members and friends of the association when they wished to dine together. Responding, Mr. H. Swan said the members derived a great benefit from the meetings, and their employers would obtain considerable advantage from the extra knowledge and experience the gardeners were enabled to obtain there. The speaker, concluding, expressed regret and entered a protest on behalf of the society at the action of the London County Council in appointing a soldier as parks superintendent instead of a practical gardener.

MARKETS.

COVENT GARDEN, March 2.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacia dealbata (mimosas), per doz. bunches...	8 0-10 0		Lilium album ...	1 6-2 0	
Anemones, p. doz.	1 0-1 6		Lily of the Valley, p. dz. bunches...	6 0-9 0	
Azalea, Ghent, per bunch ...	0 6-0 9		— extra quality...	12 0 15 0	
— Fielder, p. dz.	3 0-5 0		Marguerites, p. dz. bunches white and yellow ...	2 0-3 0	
Bouvardia ...	6 0-8 0		Mignonette, per dozen bunches...	3 0-4 0	
Calla (see Richardia)			Narcissus poeticus (Pheasant's Eye), per doz. bunches...	1 0-2 0	
Carnations, p. doz. blooms, best American (var.)...	2 0-3 0		— Soleil d'Or ...	1 0 1 6	
Carola, and other special varieties ...	5 0-6 0		Odontoglossum crispum, per dozen blooms...	1 0-2 0	
— second size ...	1 6-2 0		Pelargonium, shw., per doz. bchs.	4 0-6 0	
— smaller, per doz. bunches...	12 0-18 0		— Zonal, double scarlet...	4 0-6 0	
Camellias, per doz.	1 0-2 0		Richardia africana (Calla), p. doz.	1 6-2 6	
Catleyas, per doz. blooms ...	6 0-9 0		Roses, 12 blooms, Niphetos ...	2 6-3 0	
Daffodils, best, per doz. bunches...	2 0-4 0		— Bridlesmaid ...	3 0-4 0	
— seconds ...	1 6-2 0		— C. Testout ...	4 0 6 0	
— double, per dz. bunches ...	2 0-4 0		— Kaiserin A. Victoria ...	4 0-6 0	
Eucharis grandiflora, per dozen blooms...	3 0-4 0		— C. Mermet ...	2 0-4 0	
Freelias, p. dz. bch.	1 6-2 0		— Liberty ...	6 0-12 0	
Heather (white), per bunch ...	0 4-0 6		— Mme Chateaufort ...	6 0-8 0	
Hyacinths, Roman, per doz. bchs.	6 0-9 0		— Richmond ...	4 0 6 0	
Lapageria alba, per dozen blooms...	1 6-2 0		— The Bride ...	4 0-5 0	
Lilac (Franch.), p. bch.	3 0-4 0		Spiraea, p. dz. bchs.	2 0-4 0	
Lilium auratum, per bunch ...	2 0-3 0		Stocks, p. dz. bchs.	3 0-4 0	
— longifolium ...	4 0-5 0		Sweet Peas, per dozen bunches...	3 0-6 0	
— lancifolium rubrum ...	2 0-2 6		Tuberose, per dz. blooms...	4 0-5 0	

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum cuneatum, per dozen bunches...	6 0-8 0		Ferns (French) ...	0 6-0 9	
Asparagus plumosus, long trails, per doz.	12 0-18 0		Galax leaves, per doz. bunches...	1 6-2 0	
— medium, doz. bunches...	12 0-18 0		Holly, foliage (various), per dozen bunches...	3 0-9 0	
— Sprenger ...	0 9-1 6		Ivy-leaves, bronze long trails per bundle...	0 9-1 6	
Berberis, per dozen bunches ...	2 6-3 0		— short green, per doz. bunches...	1 6-2 6	
Croton leaves, per bunch ...	9 0-12 0		Moss, per gross ...	4 0-5 0	
Cycas leaves, each 10-20			Myrtle, dz. bchs. (English), small-leaved...	4 0-6 0	
Ferns, per dozen bunches (English) ...	2 0-3 0		— French ...	1 0-1 6	
			Smilax, per dozen trails ...	6 0-8 0	

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Ampelopsis Veitchii, per dozen bunches...	6 0-8 0		Euonymus, per dz., in pots...	3 0-8 0	
Aralia Sieboldii, p. dozen ...	5 0-8 0		— from the ground ...	3 0-6 0	
— larger specimens ...	9 0 12 0		Ferns, in thumb-pots 100...	8 0 12 0	
— Moseri ...	6 0 8 0		— in small and large 60's ...	12 0-20 0	
— larger plants ...	12 0-18 0		— in 48's, per dozen ...	4 0-6 0	
Araucaria excelsa, per dozen ...	12 0-30 0		— choicer sorts ...	8 0-12 0	
— large plants, each ...	3 6 5 0		— in 32's, per dozen ...	10 0 18 0	
Aspidistras, p. dz., green ...	15 0-24 0		Ficus elastica, per dozen ...	9 0-12 0	
— variegated ...	30 0-42 0		— repens, per dz. ...	6 0-8 0	
Asparagus plumosus nanus, per dozen ...	9 0-15 0		Genistas, per dz. ...	6 0-9 0	
— Sprenger ...	9 0-12 0		Grevilleas, per dz. ...	4 0 6 0	
— tenuis ...	9 0-12 0		Hyacinths, per dz. pots, 3 in a pot ...	6 0-9 0	
Azaleas, per doz.	30 0-42 0		Isoetes, per dozen kentia Belmontiana, per dozen ...	18 0-24 0	
Begonia Gloire de Lorraine, p. dozen ...	12 0-18 0		— Fosteriana, per dozen ...	18 0-30 0	
Cinerarias, per doz.	5 0-8 0		Liatris borbonica, per dozen ...	15 0-21 0	
Clematis, per doz.	8 0-9 0		Lilium longiflorum, per dz. ...	24 0-36 0	
Cocos Weddelliana, per dozen ...	18 0-30 0		— lancifolium, p. dozen ...	18 0 30 0	
Crotons, per dozen ...	18 0-30 0		Lily of the Valley, per dozen ...	18 0-30 0	
Cyclamen, per doz.	8 0 12 0		Marguerites, white, per dozen ...	6 0-9 0	
Cyperus alternifolius, dozen ...	4 0-5 0		Mignonette, per dozen ...	6 0-8 0	
— laxus, per doz.	4 0-5 0		Selaginella, p. doz.	4 0-6 0	
Daffodils, per doz.	4 0-6 0		Solanums, per doz.	6 0-9 0	
Dracaenas, per doz.	9 0-24 0		Spiraea japonica, per dozen ...	9 0-12 0	
Erica gracilis, per dozen ...	10 0-15 0		Tulips in boxes of 24 bulbs ...	1 6-2 0	
— hymenalis ...	9 0-15 0		— pots, special ...	9 0-12 0	
— melanthra ...	9 0-18 0				
— persulata alba, per dozen ...	15 0-25 0				
— small plants (various) ...	3 0-5 0				

Fruit: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples Newtown (U.S.), per barrel ...	28 0-34 0		Limes, per case ...	2 6-3 0	
— (Nova Scotian), per barrel ...	14 0-17 0		Lyches, per box ...	1 6-1 9	
— Starks ...	13 0-16 0		Mangoes (Cape), per doz.	4 0-10 0	
— Baldwin ...	14 0-18 0		Nectarines (Cape), per box (24 to 28 fruits) ...	5 0-10 0	
— Greening ...	17 0-22 0		Nuts, Almonds, p. bag ...	36 0-42 0	
— Fallawater ...	14 0-18 0		— Brazils, new, per cwt.	32 0 66 0	
— Ben Davis ...	12 0-15 0		— Barcelona, per bag ...	32 0-34 0	
— (English), per bushel:			— Cob, per lb. ...	0 3 0 3 1	
— Anne Elizabeth ...	5 6-6 6		— Cocoa nuts, 100 10-14 0		
— Allington Pippin ...	4 6-6 0		— Walnuts (French), per bag ...	5 0-5 6	
— Newton Wonder ...	5 0-7 0		— Chestnuts (Rondor), per bag ...	5 0-6 0	
— Bramley's Seedling ...	5 0-7 0		— (Italian), p. bag 11 0-13 0		
— Lane's Prince ...	5 0-6 0		Oranges—		
— Cox's Orange Pippin, ½ sieve ...	5 0-8 0		— Californian ...	10 0-11 0	
— Newtown Pippin, per case:			— Navel, box (96) ...	10 0-11 0	
— Oregon ...	10 0-12 0		— Jaffas, (112) ...	12 0-13 0	
— Californian ...	7 0-9 0		— Jaffas, per box 11 6-13 0		
— British Columbia ...	12 0 18 0		— Denia, per case (420) ...	12 0-24 0	
Bananas, bunch:			— Valencia, per case (420) ...	11 0 18 0	
— Doubles ...	10 0 —		— Jamaica, per case (176) ...	9 0-10 0	
— No. 1 ...	8 0-10 0		— (200) ...	9 0-9 6	
— Extra ...	8 0-10 0		— Messina Bitters, per box ...	7 0-8 0	
— Giant ...	9 0-11 0		— Mandarin, Florida, p. case ...	11 0-13 0	
— Red coloured ...	4 6-6 0		— per box ...	1 4-1 6	
— Red Doubles ...	8 0-9 0		— Jamaica, p. case ...	10 0-11 0	
— Jamaica ...	5 0-5 6		Cranberries, per case ...	6 0-7 6	
— Loose, per dz. ...	6 0-1 0		Custard Apples, p. dozen ...	6 0-12 0	
Grape Fruit, case 10 0-12 0			Grape Fruit, case 10 0-12 0		
Grapes, per lb.:			— (Cape) black, per case, large ...	10 0 —	
— (Cape) black, per case, large ...	10 0 —		— small ...	5 0-6 0	
— " " small ...	5 0-6 0		— Gros Colmar, A quality ...	2 0 3 0	
— Gros Colmar, B quality ...	1 0-1 6		— B quality ...	1 3-1 9	
— Alicante, A quality ...	1 6-2 6		— B quality ...	1 3-1 9	
— quality ...	1 3-1 9		— Gros Colmar (Belgian), per barrel ...	14 0-20 0	
— B quality ...	1 3-1 9		— (Almeria), per p. 12lb. baskets ...	5 0-8 0	
— (Belgian), per barrel ...	14 0-20 0		— Palermo, 300 ...	8 0-11 0	
— (Almeria), per p. 12lb. baskets ...	5 0-8 0		— 360 ...	9 0-12 0	
— selected, case ...	10 0 14 0		— selected, case ...	10 0 14 0	

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (Globe), per dozen ...	1 6-1 9		Mushrooms, per lb. — broilers ...	0 9-10 0	
— Jerusalem, ½ sieve ...	0 9-1 0		Mustard and Cress, per dozen pun. ...	1 0 —	
Asparagus, Paris Green, bundle ...	5 0-7 0		Onions (Dutch), p. bag ...	3 6-4 0	
— Sprue, bundle ...	10 0-1 3		— (English), bag ...	4 6-5 6	
— Lauro, bundle ...	8 0-10 0		— (English), p. bushl. ...	7 0-8 0	
Beans (English and Chan. Islands), per lb. ...	1 6-2 0		— (Valencia), per case ...	8 6-9 0	
— Broad (French), per pad ...	5 6-6 6		Parsley, ½ sieve ...	1 6 —	
— (Madeira), per basket (6 to 8 lbs.) ...	4 0-6 0		Parsnips, per bag ...	2 0-2 6	
Beetroot, per bushel ...	1 0-1 6		Peas (French), per pad ...	3 0-5 0	
Cabbages, p. tally ...	3 0-4 0		Potatoes (Channel Islands), per lb. ...	0 4-0 4 ½	
Cardoons (French), per dozen ...	8 0-10 0		— (Teneriffe), per cwt. ...	12 0-14 0	
Carrots (English), dozen bunches ...	2 9-3 0		Rhubarb (forced), doz. bundles ...	0 7-0 10	
— per bag ...	3 0-3 6		Radishes (French), per doz. bunches ...	1 3-1 6	
— unwashed ...	1 9-2 0		— (Guernsey), dz. ...	0 9-0 10	
Cauliflowers, tally ...	4 6-5 0		Savoy, per tally ...	4 0-5 0	
— (Italian), basket ...	1 6-1 9		Seakale, per dozen punnets ...	10 0-12 0	
Celeriac, per doz. ...	1 6-2 6		— (French), ½ sieve ...	2 0-2 3	
Celery, p. dz. ...	12 0-14 0		— (French), crate ...	3 6-4 0	
— "Fans," per dz. ...	12 0 14 0		Sprouts, ½ sieve ...	1 0-1 3	
Chicory, per lb. ...	0 2-0 2 ½		— per bag, 28 lbs. ...	1 9-2 0	
Cucumbers, p. doz. ...	5 0-7 0		Stachys tuberosa, per lb. ...	0 4-0 5	
Endive, per dozen ...	2 0-2 3		Tomatoes—		
Horseradish, foreign, new, per bundle ...	1 0 1 6		— (Teneriffe), per bundle ...	8 0 16 0	
— 12 bundles ...	12 0-18 0		Turnips, 12 bchs. ...	2 0 3 0	
Leeks, 12 bundles ...	10 0 1 6		— bags ...	2 9-3 0	
Lettuce (French), per dozen ...	1 8-2 0		— dirty, per bag ...	1 6-2 0	
Marrows (Madeira), per doz. ...	12 0-18 0		Turnip Tops, per bag ...	1 6-2 0	
			Watercress, p. flat ...	4 6-6 6	

REMARKS.—The demand for barrel Apples continues to improve for good, richly coloured samples. Prices of Californian and Oregon Newtown Pippin Apples remain about the same as last week. Oranges of all varieties are firm in value, and the finest samples are selling high prices. Patagonia Avocado is dear. English forced Rhubarb is a per market it is arriving in large bulk both from Yorkshire and Essex. English and Channel Island Beans are cheaper. Canary Tomatoes of the best quality are meeting a good market, but fruits of inferior quality are plentiful and not wanted. Celery is a short supply. Seakale is a little firmer in price. Mushrooms are finding a better market. Guernsey Radishes are slightly cheaper than the French samples. Cape Fruit is a good supply. Clapps Favourite Peas and Burbank

Plums are in short. There is a good supply of black Grapes from the Cape. Home-grown Grapes are a good supply, and meet with a good demand. A consignment of West Indian Claret or Red Bananas is expected to arrive next Tuesday. The supply of good Canary Bananas is deficient, consequently ripe bunches find an excellent market. A consignment of Pears and other fruits from South Australia is expected in Covent Garden next week. Trade generally is good, both in the vegetable and fruit markets. *E. H. R., Covent Garden, Wednesday, March 2, 1910.*

Potatoes.

	per cwt.		per cwt.
Bedfords—	s.d. s.d.	Lincolns—	s.d. s.d.
Up-to-Date ...	3 0-3 6	Up-to-Date ...	3 3-4 0
Blacklands—	2 6-2 9	Dalmeny Beauty ...	3 6-3 9
Dunbars—		British Queen ...	3 3-3 9
Maincrop ...	5 6-5 9	Royal Kidney ...	2 6-3 0
Up-to-Date ...	4 3-4 9	Maincrop ...	3 6-4 0
Lincolns—		Up-to-Date ...	3 0-3 3
Evergood ...	2 6-2 9	Kents—	
Sharpe's Express ...	3 0-3 3	Scott's Triumphs ...	3 6-4 0
		Up-to-Date ...	3 6-4 0

REMARKS.—Trade is very bad and prices are lower. The stock of tubers in London is very heavy. *Edward J. Newborn, Covent Garden and St. Pancras, March 3, 1910.*

COVENT GARDEN FLOWER MARKET.

Lent is always a bad time for the sale of cut flowers, and this season it is worse than usual. Roses, which were scarce a few weeks ago, are again plentiful, and their prices are very uncertain. The best red varieties have been making fair prices, also Frau Karl Druschki and Mme. Abel Chatenay. Carnations are abundant and of good quality. Some Tulips have been sold at 3s., per dozen bunches, or less. Yet best-quality freshly-cut blooms may make from 9s. to 18s., and a few of extra special double varieties even more. *Richardia africana* (Calla) has been over plentiful. *Lilium longiflorum* has fallen considerably in price, plants which, in the usual way, should be in flower earlier being only now ready for cutting. It has been much the same with *Lilium lanciflorum*: they have come in fully a month too late. Lily of the Valley maintains fair prices, except for those of second quality. Violets from English and French growers are abundant and cheap. Camellias cannot be cleared at any price just now. Gardenias have been selling well. Cattleys, which a few weeks ago were making 12s. per dozen, are now difficult to dispose of at 6s.

POT PLANTS.

Trade is very uncertain. Some things sell fairly well, but generally trade is very dull. I noted on Saturday last several stands nearly full of flowering plants at closing time. Azaleas are still over plentiful, including a large number of pyramidal plants. Cyclamen are of better quality. Marguerites are well flowered, and some *Chrysanthemums* are still seen. *Begonia Gloire de Lorraine* is remarkably good. Hyacinths, Tulips, and Daffodils are plentiful. Store boxes of *Lobelia* and other summer bedding plants are already seen, and there are large supplies of hardy flowering plants. *A. H., Covent Garden, Wednesday, March 2, 1910.*

ANSWERS TO CORRESPONDENTS.

CARNATIONS DISEASED: *Malmi on.* The plants are badly affected with a fungus disease—*Helminthosporium echinulatum*. Pinch off and burn every leaf that is affected. The worst of the plants should also be burned. Spray the remaining foliage with liver of sulphur of the usual strength— $\frac{1}{2}$ ounce to two gallons of water. Remember this fluid will cause paint to turn black. It is a mistake to stand Carnations, and especially those of *Souvenir de la Malmaison* type, out-of-doors for a short season. Keep the plants on the dry side and the foliage perfectly dry during the winter months.

GRUBS IN ADIANTUM: *W. T. G. I.* The insects are weevil grubs, most destructive pests to all kinds of plants. Place some Carrot, Potato, or other vegetable on the surface of the pot, by which means they may be trapped. The perfect weevils feed at night-time, and are as destructive to plants as are the grubs. You should hunt for these with a lantern, using the same baits as suggested for the larvæ.

HYACINTHS FAILING TO MAKE ROOTS: *M. C.* The trouble is most probably due to bulb mites. An examination revealed a few only of these pests, but their presence was in keeping with the condition of the root system.

MARECHAL NIEL ROSE: *Hadham.* It is some what characteristic of this Rose, after a few years of successful culture, to show sudden symptoms of collapse, even when the root medium, watering, and temperature appear to be all that could be desired. The cause can generally be traced to the point of union of stock and scion, and if this is too close to the hot-water pipes, it has a tendency to aggravate the trouble. When planted at all near to the pipes, the union should be considerably above the level of the apparatus, or just below the

surface of the soil; but in either case the stem should be given protection from the heat. In place of a single plant grown under the extension system, several plants upon the double cord system might be preferable. Rose Reve d'Or makes a good stock for Marechal Niel.

MUSHROOM: *S. F. C.* The specimens received are merely the common Mushroom (*Agaricus campestris*), but they are distorted by an attack of a parasitic fungus known as *Hypomyces pernicius*. It is not desirable to use such diseased examples for food, therefore, they should be removed to the fire as soon as they are observed, in order to prevent the disease from spreading. The attack is not due to the spawn. It may be added that the disease is not uncommon in forced Mushroom culture.



FIG. 66.—*UROCYSTIS VIOLEÆ* ON SWEET VIOLET.

A, B, C, D, gummy swellings on leaf, petioles and stolon. E, transverse section through swelling, magn. 2. F, compound spores, magn. 500.

NAMES OF FRUITS: *E. Nicholson.* Castle Major. —*H. Henderson.* The Pears were decayed beyond recognition. Send other fruits next year earlier in the season.—*H. H. D.* 1, Minchull Crab; 2, Winter Hawthornden; 3, Dumelow's Seedling; 4, Small's Admirable; 5, Scarlet Pearmain; 6, King of the Pippins.

NAMES OF PLANTS: *G. A.* 1, *Cupressus macrocarpa*; 2, *Tsuga diversifolia*; 3, *Juniperus chinensis*; 4, *Cryptomeria japonica*; 5, *Pseudotsuga Douglasii*; 6, *Pernettya mucronata*; 7, *Cupressus pisifera* var. *squarrosa*.—*L. J. G.* 1, *Thuya occidentalis*; 2, *Cupressus Lawsoniana*; 3, probably *Thuya japonica*.—*B. H.* 1, *Cornus Mas*; 2, please send again in summer; 3, *Juniperus chinensis*; 4, *Buxus balearica*; 5, *Phillyrea decora*; 6, *Osmanthus ilicifolius*; 7, *Cistus laurifolius*; 8, *Escallonia* species, send when in flower; 9, *Genista hispanica*; 10, *Phillyrea latifolia* var. —*J. W. T.* The Pinus is *Pinus*

monophylla, and the other plant is *Taxus cuspidata*.—*Essex.* 1, *Cotoneaster horizontalis*; 2, *Coronilla coronata*.—*Y. Z. Bell Bar.* *Lonicera flexuosa*.—*J. K.* 1, A species of *Cereus*, probably *C. sylvestris*; it is impossible to name the species with certainty, unless flowers are sent. 2, *Opuntia (Nopalea) coccinellifera*.—*Reader.* *Antennaria dioica*, as far as we can determine from such a miserable specimen.—*K. B.* 1, *Manettia bicolor*; 2, *Pteris longifolia*; 3, *Aspidium (Cyrtomium) falcatum*; 4, *Davallia dissecta*; 5, *Pteris cretica albo-linata*; 6, *Asplenium bulbiferum*.—*Morton.* 1, *Oncidium crispum*; 2, *Odontoglossum Lindleyanum*; 3, *Bulbophyllum auricomum*; 4, *Brassia verrucosa*; 5, *Cochlidia sanguinea*; 6, *Dendrobium monilliforme*.—*W. H. E.* *Bauhinia variegata*, which varies from pure white to the rose-coloured form you have sent us.—*N. S.* *Cataseum fimbriatum*.—*A. T. Epping.* 1, *Cypripedium villosum*; 2, *C. Ashburtoniae*; 3, *C. callosum*; 4, *C. Boxallii*; 5, *Davallia dissecta* *Mariesii*; 6, *Lastrea aristata variegata*; 7, *Polystichum angulare proliferum*; 8, *Begonia metallica*; 9, *Chlorophytum elatum variegatum*.—*J. B.* 1, *Polygala Dalmatiana*; 2, *Libonia Penrhosiensis*; 3, *Viburnum Tinus*; 4, *Skimmia oblata*; 5, *Cryptomeria japonica*; 6, *Eranthis hyemalis*.—*W. H. B.* *Chimonanthus fragrans*.—*B. E. S.* *Asparagus myriocladus*.

PEACH BUDS DROPPING, &c.: *J. B.* The cause of Peach buds dropping is generally attributed to some check received by the plants. The most frequent cause is a bad condition of the border when the trees are resting during autumn and winter. If the soil is kept too dry, this will induce bud-dropping, and, on the contrary, an excess of moisture has the same effect: but it is generally to be attributed to drought at that stage. Some varieties of Peach are more prone to bud-dropping than others. The Cucumber is affected with canker in the stem and mildew on the leaves. The plant is generally so unhealthy, we advise you to burn it and others similarly affected. You may probably prevent the diseases from spreading by spraying the healthy plants with some fungicide such as liver of sulphur or permanganate of potash, in the usual proportions.

VINE SHOOT: *Crib.* The condition is not due to either fungi or insects, but is an instance of abnormal growth. It is desirable to remove the shoot entirely, as the malformation will prevent it from bearing serviceable fruit.

VIOLETS WITH PECULIAR GROWTH: *J. W. B.* The swollen leaf-stalks and blistered leaves of the Violet plants are due to the presence of the fungus *Urocystis violæ*, popularly known as Violet smut (see *Gard. Chron.*, September 30, 1876, p. 421). Some of the swellings have burst, exposing sooty-black masses of spores, which are developed within the tissues of the plant. The spores are compound, that is to say, they consist of several thick-walled fertile spores massed together and surrounded by a ring of thinner-walled, sterile spores. Such spores (fig. t6), characteristic of the fungus *Urocystis*, produce on germination short stalks, one from each fertile cell. These stalks, called promycelia, bear each a crown of four secondary spores. Each secondary spore, on germination, produces a germ tube, which grows into the tissues of the Violet, and thus re-infects the plant. The remedies to adopt are:—(1) Spray the Violet plants with weak Bordeaux mixture; (2) pick off and burn all contorted stems and blistered leaves, taking care to remove them before they have shed their spores. By vigilance in this direction, you may hope to gradually exterminate the disease, though it may prove a slow business. A speedier method, though involving a sacrifice of some plants for the time being, is to cut back all diseased plants and to keep a sharp look-out to see that the shoots which form from dormant buds show no sign of the disease. If they do, the plants should be dug up and the soil sterilised by watering with a weak solution of copper sulphate. The illustration in fig. 66 has been prepared from your specimens.

Communications Received.—*J. Sargeant*—*J. C. Harris*—*Dr. L., Berlin*—*J. P. & Co.*—*W. F.*—*Sir C. D.*—*J. M.*—*S. P. E.*—*A. J. C.*—*Mid-Devon Advertiser*—*A. J. B.*—*T. H.*, Birmingham—*D. W.*—*A. C. B.*—*A. S.*—*J. F. McL.*—*W. J. B.*—*T. A. C.*—*A. V. T.*—*S. G. E.*—*T. S. L.*—*Dr. A. H.*—*W. B. H.*—*J. C. H.*—*John S.*—*B. G.*—*W. E. B.*—*Dr. J. A. H.*—*E. F.*—*R. P. B.*—*Dr. J. B. F.*—*A. D.*—*Chloris*—*J. D.*—*S. W. F.*—*J. D. G.*—*J. C.*—*A. H.*—*W. H. Y.*—*Dutch Bulb Growers' Assoc.*—*W. W. P.*



Photograph by George Forrest.

PRIMULA DENTICULATA IN CHINA.

THESE PLANTS, WHICH ARE SHOWN HALF NATURAL SIZE, WERE FLOWERING
ON THE TALI MOUNTAINS.



THE Gardeners' Chronicle

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CARNATIONS.

THE successful cultivation of Carnations, whether under glass or in the open air, depends on many things; but, given proper conditions and an intelligent observance of rules, success is easy of achievement, for, with the exception of a "stuffy" atmosphere, excessive damp, and the absence of light, there are few things the Carnation will not endure. It will grow in sandy soil where Roses are out of the question; it will grow in clay and although perpetual and Souvenir de la Malmaison Carnations are grown under glass, yet, if frost enters the house and the plants are "caught," they will be little the worse in the long run.

Carnations fall into three groups: outdoor or border Carnations (and Picotees); "Malmaison" Carnations, and perpetual, tree, or American Carnations. The last-named section is to-day the most popular on account of its excellency as a cut flower. Broadly speaking, we owe it to the American raisers, who obtained it by crossing the old English tree Carnation with the French Carnation. The American calls it "the divine flower," and he has reason, for the Carnation owns to a great antiquity, and the ancient Greeks called it by the same name. *διαυθος* (Jupiter's flower).

The three classes of Carnations are quite distinct. The border varieties thrive in the open ground, and bloom but once a year. The "Malmaisons" require the protection of glass, and usually throw blooms but once a year. The perpetual-flowering Carnations, as their name implies, bloom continuously. They also are

grown under glass. The true "Malmaison" is further distinct, in that it fails to produce seed. In order to raise fresh varieties, it has therefore been crossed with the tree Carnation. Consequently some of these new varieties throw blooms more than once a year. "Malmaison" and border Carnations are usually propagated by layers and perpetual-flowering Carnations by cuttings.

PROPAGATION OF PERPETUAL CARNATIONS.

The cuttings are slipped off the flowering stems of the parent plants at any time of the year, from the beginning of November till the end of March. As a rule, the day when the flower on the parent plant is opening is the day on which the cutting should be taken. It should be removed by a downward pull, and if it brings away

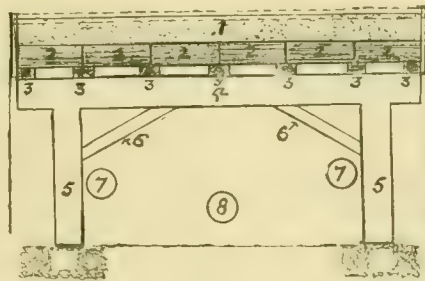


FIG. 67.—SECTION OF A PROPAGATING BENCH.
(1), layer of sand; (2), bricks; (3), deal joists, 3 x 2 in.; (4), bench bearer; (5), legs; (6), braces; (7), flow pipe; (8), return pipe.

with it a few of the fibres from the stem about $\frac{1}{2}$ inch long, it is in the right condition for striking. It is generally advisable to choose for a cutting the offshoot nearest to the flower (the highest), or that furthest from it (the lowest). The former usually makes a plant which prematurely runs to bloom; the latter is generally too hard to strike; and cuttings must be neither too hard nor too sappy if they are to root freely. It is also important to take cuttings when the plant is at its best and freshest, namely, in the earlier hours of the day. After being stripped off the plants the cuttings are taken to a cool room, sprayed with cold water, and the loose fibres at the heel are trimmed off. They may then be left in water for an hour or two to stiffen up before being taken into the propagating house.

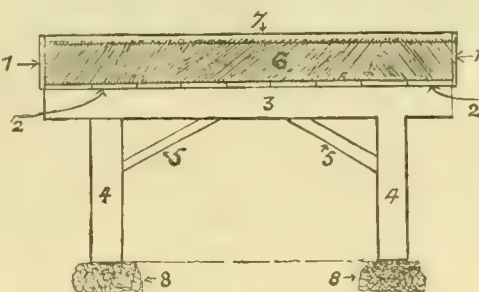


FIG. 68.—SECTION OF SOIL BENCH.

(1), side, 7 in. deep; (2), bottom boards, each 6 x 1 in.; (3), bearer boards, 4 x 3 in.; (4), legs, 4 x 3 in.; (5), braces, 2 x 2 in.; (6), soil; (7), cross tie; (8), concrete.

The propagating house should have a bench (fig. 67), say, 4 feet 6 inches wide (internally) down the centre. The supports of the bench (legs and cross bearers) may be of 4-inch by 3-inch deal. Across these 2-inch by 3-inch deals are nailed longitudinally, one on each side of the bench at the edge, the others 9 inches apart from centre to centre. That is to say, a 4 feet 6 inches bench requires seven 2-inch by 3-inch deals its whole length. Round the outside 9-inch by 1-inch boards are nailed vertically to form a trough, the lower edge of the boards flush with the lower side of the 2-inch by 3-inch stuff. Cross-ties of 1-inch by 2-inch deal are inserted

every 4 feet or so of bench length, in order to prevent the boards bulging outwards. These cross-ties are set vertically, flush with the top of the 9-inch by 1-inch board, to which they are secured with nails. The 2-inch by 3-inch deals at the bottom of the bench are to support the bricks of which the bottom is composed. Red kiln bricks are used. A bench 4 feet 6 inches wide internally will hold six bricks placed lengthways across the width of the bench, each end of each brick resting on one of the 2-inch by 3-inch deals. On the bricks clean builder's sand is placed—the sharpest obtainable. After the sand has been thoroughly firmed, it should be 3 inches deep and perfectly level. Note that the bench is 4 feet 6 inches wide *inside* the 9-inch by 1-inch surrounding boards, or 4 feet 8 inches over all. Two inches of its depth is taken up by 2-inch by 3-inch deals, about 3 inches by the thickness of the bricks, 3 inches by the sand, which is about 1 inch from the top. Under the bench there should be three rows of 4-inch hot-water pipes. The tops of the pipes must not be nearer than 12 inches to the underside of the bench. To make a gentle bottom heat, the space between the bench and the floor must be partially shut in. This is usually done by tacking a valance—grey house-flannel is suitable—on the outside of the 9-inch boards all round the bench. This should not quite touch the floor. Round the wall of the house there may be an ordinary bench covered with anthracite ashes, on which to stand the cuttings after they have been potted up. If the house is 12 feet wide internally, this surround bench should be 20 inches in breadth. This will allow room for an alley about 2 feet wide all round the middle bench. It is well to have a single hot-water pipe under the surround bench, and this should be provided with baffles, as it will only be wanted in cold weather. The temperature of the sand should be 52° to 56°; that of the air 5° less. The house will want light shading on the outside, and the cutting bench must have extra shading, which can be provided by thrusting short sticks into the sand and laying newspapers on them, these being dispensed with as soon as root formation has begun.

The cuttings are set in the sand about $\frac{3}{4}$ inch deep, and the same distance from each other, in rows 3 inches apart. A strip of planed wood, $\frac{1}{2}$ inch by $\frac{1}{4}$ inch, serves as a guide to keep the rows straight. The sand must be moist, not wet. The bricks, being porous, serve to preserve uniform moisture in the sand. The air must be kept humid, but not too much so, by watering the paths, &c. The sand must be very firm, and the cuttings must be inserted as firmly as possible by pressure of the fingers. The bench should be watered before the cuttings are put in, but after the sand has been firmed, the cuttings being sprinkled again after insertion. A Hawes propagating can is suitable.

FIRST TWO POTTINGS OF PERPETUAL CARNATIONS.

In three or four weeks properly-handled cuttings will be nicely rooted. The cuttings are then potted into 2-inch pots, fine sandy soil being used. They are nursed in the propagating house for a few days, but well-rooted cuttings do not resent their shift from sand to pots. The potting bench for this first potting should be inside the propagating house. The pots should be crocked with a few pieces of charcoal broken small. When in the course of a few weeks the plant has filled the pot with roots, and is ready for the next shift into a $3\frac{1}{2}$ -inch pot, the charcoal is not knocked out at the repotting, but the whole ball is transferred to the larger pot, which is also crocked with charcoal. This saves breaking roots, and the charcoal keeps the soil sweet. The little plants in the 2-inch pots, as soon as they have become established—say, in ten days from their transference from the sand—are taken into a house where more ventilation can be given, as it is not generally desirable to admit air to the propagating house while cuttings are in the sand.

SOIL FOR SOUVENIR DE LA MALMAISON AND PERPETUAL CARNATIONS.

In a place where large quantities of Carnations are grown under glass, either for home or market, one of the most important problems to be faced is that of the soil. Malmaison and perpetual Carnations differ in their soil requirements in one respect. For Malmaisons the grower adds stable manure, one part manure to two of soil, the manure being stacked with the soil at least six months before use. For perpetual Carnations no organic manure is generally used. The Malmaisons are gross feeders; most varieties of tree Carnations are not. The only soil suitable for Carnations is the top-spit from a meadow; fibrous stuff that has lain in the stack, grass-side down, for the best part of a year. This should be tested for lime. It is said that within the memory of living man Carnations grew on the walls of Rochester Castle. They certainly have been found in such places, and that because they revel in the lime which the mortar contains. Therefore, if the soil is deficient in lime, this must be added. Ground, air-slaked lime is used. Bone-dust—6 lbs. to each cubic yard of soil—is also useful. If the soil lacks potash, Kainit is added. This contains common

the soil in most cases has gone sour. Moreover, a plant twice potted is usually a plant with twice the amount of roots.

When you are potting Carnations into 5½-inch and 7½-inch pots you find out involuntarily which of your pots are cracked and which are sound; for if a Carnation plant is not tucked in tightly enough to make a cracked pot "fly," the potting bench man is either not strong enough or not energetic enough for his work. This remark only applies to the last two pottings; for the first two the pressure of the fingers suffices. A piece of wood shaped like a cold chisel makes a good pot rammer.

STOPPING PERPETUAL CARNATIONS

Usually when the plants are yet in the 3½-inch pots, say, when they are 7 inches high, they are stopped back to the second joint. They soon break, and, except in the case of very late-struck plants, the breaks must be also stopped in similar manner. Never stop all your plants on the same day unless you wish all to come into flower at the same time.

SOIL BENCHES FOR PERPETUALS.

If the plants are to be flowered in pots they

have stiffer and longer stems, and they are, perhaps, a little earlier. But, taking the Carnation year right through from, say, October to July, if a plant in a pot gives six blooms and six cuttings, a similar plant in a soil bench gives ten blooms and ten cuttings. Some growers get excellent results from two or even three-year-old plants cut back and grown in pots. Two-year-old plants in benches generally give a larger amount of bloom than first year's plants, but the blooms are usually inferior in size, stiffness, and in length of stem. *E. A. White.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

ZYGOPETALUM CHLORANTHUM

(KRÄNZL.), N. SP.

I RECEIVED this plant from Baron Max von Fuerstenberg, Hugenpoet, near Essen, who informed me that he purchased it in England under the name or among a lot of *Paphinia cristata*, a species which it much resembles in habit. The flower-spike is rather weak, the bracts are comparatively large, and embrace the lower half of the pedicel with the ovary. The flowers are not even medium-sized for a *Zygopetalum*; they are greenish in colour, and unattractive, but they have two characters which are rather uncommon for a *Zygopetalum*. Firstly, the flowers are hairy inside, just as is found in a certain group of green-flowering *Lycastes*; secondly, they have a very agreeable smell, rather difficult to describe, which seemed to me somewhat reminiscent of that of *Stanhopeas*, but reduced to an agreeable perfume. The lip shows exactly the form (much reduced in size) of *Z. maxillare*; the teeth, seven to eight in number, are white, contrasting to the greenish-white ground colour of the lip.

This plant is allied to *Z. Murrayanum* (Gardn.), a half-forgotten species, described and figured 71 years ago in the *Bot. Mag.* (t. 3674), and mentioned by Mr. Rolfe in this journal (1888 II.), and in the *Flora Braziliana* II., 575. Our plant is smaller in every part, and without any trace of red on the lip and column, but, except for these differences, it is certainly a very similar plant, so that now we have a little group of two species. Therefore, I cannot but declare *Z. Binotii* (de Wildem.) synonymous with *Z. Murrayanum* (Gardner). The descriptions, for instance, in *Flora Brazil.* II., 575, and III., 575, were practically identical, and there are no discrepancies of any systematic value, neither in form nor in dimensions, between the old and the new species. Mons. de Wildeman considered his plant to be a hybrid between *Zygopetalum* and *Colax*, or perhaps other plants. I regret that I must decline to follow this gentleman in this direction. On account of its hairiness inside, I regard my new species as a hybrid between a *Zygopetalum* and a *Lycaste*, and, because of its peculiar perfume, I consider it to be derived also from a *Stanhopea*. *Z. Binotii* is said to be found near Theresopolis, in the province of Rio de Janeiro, but it is not very probable that a botanist like the late Dr. Glazion, who knew every spot of this province, and who was a very experienced connoisseur of Orchids, would have overlooked a plant of such size as an ordinary species of *Zygopetalum*. *Fr. Kränzlin.*

* *ZYGOPETALUM CHLORANTHUM* (Kränzlin), n. sp.—Planta habitu et magnitudine *Paphinie cristate*, quacum introducta est. Racemus laxis, pauciflorus, ad 10 cm. longus; bractee late obovatae, antice retusae, apiculatae, in ochream convolutae, virides, ovario cum pedicello exacte et longitudine et latitudine aequantes. Sepalum dorsale concavum, late ellipticum, obtusum, sepala lateralia oblonga, angustiora, longiora, acutiora, omnia 1.2 cm. longa, dorsale 8 mm., lateralia 6 mm. lata. Petala ligulata, basi lata pone labellum inserta, obtusa, 1.1 cm. longa, 5-6 mm. lata; haec omnia intus sparse longeque albo-pilosa, ceterum viridia. Labellum albidum, lobis lateralibus erectis, subhombeis, truncatis; lobus intermedius latissime obovatus, obtusissime acutatus, deflexus, callus maxilliformis inter lobos laterales transversus, albus, 7-8 dentatus, satis prominens; totum labellum 1.8 cm. longum, antice 8-9 mm. latum. Gynostemium latum, paulum curvatum, album, 5-6 mm. longum; anthera acuta. Flores, pro *Zygopetalo* inamoeni, odorem suavem illi *Stanhopeae* similem, haud tamen ita gravem exhalantes.



FIG. 69.—CARNATIONS GROWN ON THE BENCH SYSTEM.

salt, and the Carnation loves salt; indeed, it is, perhaps, never quite so happy as when it grows by the seaside. All these ingredients are mixed with the soil fully six months before it is used, and this fertilised soil is only used for the third and last pottings of perpetuals, and for the last potting of Malmaisons. Some growers add sand. The writer does not, unless it is absolutely necessary. Believing that it "deadens" the soil, he prefers to trust for drainage to the fibrous nature of his loam. No leaf-mould or peat is used in Carnation culture.

THIRD AND FOURTH POTTINGS OF PERPETUALS.

From the 3½-inch pot the plant is transferred into a 5½-inch pot. One hears sometimes of growers transferring plants direct from the 3½-inch into the 7½-inch pot. This, generally speaking, is an error. A plant that has been turned out of a 3½-inch direct into a 7½-inch pot has, so to speak, bitten off more than it can chew. A couple of months will have elapsed before it has anything like filled the larger pot with roots. Now roots are the means by which pots are drained. Compared with them, crocks, sand and fibrous soil are unavailing. Consequently, long before the plant has filled the pot with Nature's drainage,

are transferred to 7½-inch pots in July as soon as the smaller pots are full of roots. But in places where many Carnations are grown they are usually flowered in soil benches.

Soil benches (fig. 68) are constructed similarly to the propagating bench already described, except that in place of the 2-inch by 3-inch quartering and brick bottom, inch-thick boards, of any convenient width not exceeding 6 inches, are used, and the upright boards forming the sides are 7 inches wide, making the bench 6 inches deep inside. A space of about a sixth of an inch must be left between the boards forming the bottoms to allow of drainage. These benches are usually 4 feet 6 inches wide internally (4 feet 8 inches externally), which allows six plants in each row 9 inches apart, the rows (which run the width of the bench transversely) being 10 inches apart. A cross-tie of 2-inch by 1-inch deal is put in at every 6 feet or so of bench length, to prevent the sides giving out, in the same way as described for the propagating bench.

Are perpetual Carnations best grown in pots or in benches? The writer's view is best expounded by the fact that out of his 10,000 plants, 9,000 are grown in soil benches. Undoubtedly up to January the flowers from plants in pots

THE ROSARY.

CULTURAL NOTES FOR MARCH.

SINCE my last note, the weather has been very variable, with occasional hard frosts and plenty of very heavy rains. Roses, generally, are in a very forward condition, and in sheltered positions they are almost ready to break into leaf. Changeable weather is a more serious matter for Roses than prolonged cold, as the early growths are more tender.

PRUNING.

It will soon be time for commencing pruning, as a start should be made with the hardy and half-hardy varieties about the 10th of this month, and continued at intervals of a week or 10 days throughout March. The cutting of the tender

severely if short-jointed, and to six or eight buds, but, if long-jointed, to four or six. Prune to an outward eye, with the object of keeping the centre of the plant well open. Pruning at intervals will tend to prolong the flowering season, and will also, to some extent, avoid damage by late frosts. All Roses, after being planted some years, deteriorate, and require to be renewed or cut very hard back to induce strong, new shoots to break from the base. This severe treatment requires to be practised with caution, and a portion only of the stock should be operated on each year, or there will be a considerable deficiency of blooms. All plants that have been damaged by frost can be pruned later to sound wood, and this also applies to the standard Briars if they have suffered from this cause.

Examine the beds carefully, and, if any cuttings have been loosened by the frost, tread

When the temperature of the bed declines to 80°-75°, and that of the atmosphere is a few degrees less, insert the cuttings. Cut each shoot with two or three leaves immediately under a joint, and put them into small thumb pots in a mixture of loam, leaf-mould and sand, surfaced with pure sand. Plunge the cuttings in a layer of fine ashes and fibre placed on the bed. After one good watering, the moisture in the frame will suffice, but after the first week a daily spraying with the syringe with water of the same temperature as the frame should be afforded. Shade the frames from direct sunshine, and cover them with mats during the night. If at first there is too much moisture from the beds, the frames can be tilted a little at the back for an hour or so during the day; as the frame becomes drier they can be kept closed until the cuttings are rooted. Roses planted out in borders under glass will

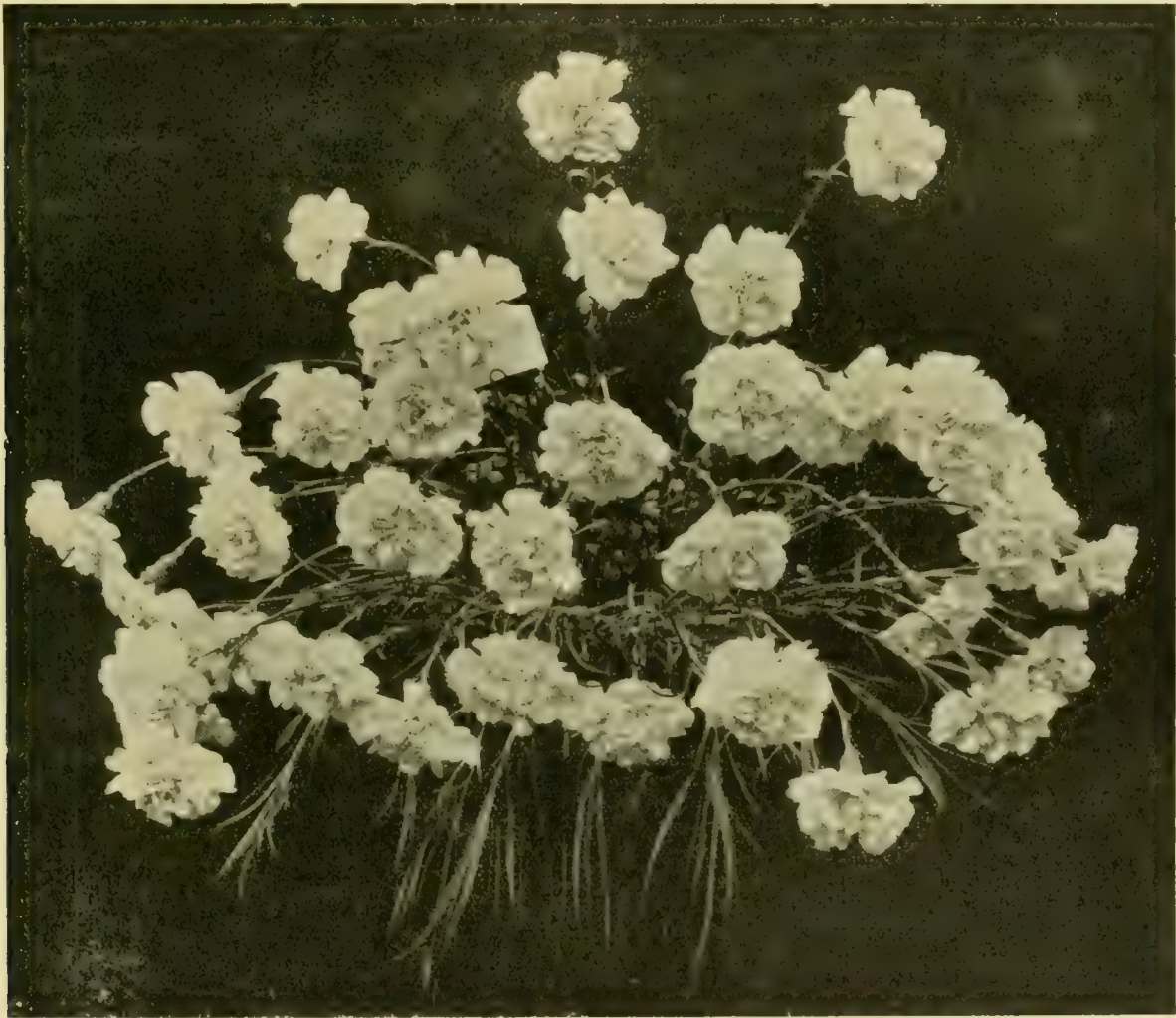


FIG. 70. CARNATION "ENCHANTRESS," AS GROWN BY MR. W. H. PAGE, TANGLEY NURSERY, HAMPTON, FOR COVENT GARDEN MARKET. (See p. 161.)

Tea, Hybrid Tea, and Noisette varieties should follow on until the second and third week in April. Local and climatic conditions will have to be taken into account, and also the type of Rose. If Roses of the Hybrid China, Hybrid Bourbon, Damask, Moss, the Sweet Briar, and other summer-flowering types were pruned and thinned after flowering, they will now require little attention beyond the removal of old and dead wood and unripened shoots and suckers. Hardy climbing varieties of the Ayrshire, Bour-sault, and Rambler kinds, if not already attended to, can be thinned out where the growth is crowded, leaving the best matured shoots a few inches apart, whether on walls, arches, or trellises. The next to be done after these are the Hybrid Perpetuals, which should have each shoot cut back to one-third or more, according to the variety. The weaker growers must be cut

them well in again so as to furnish a good, firm root-run, and afterwards apply a mulch if required.

Briar seeds sown in drills should be examined towards the end of the month and some fine soil placed on the drills, removing any clods or lumps so as to enable the seedlings to break through the ground easily in April. With the advance of the season and increased sunlight, a little more fresh air may be given pot Roses indoors. Maintain a moist atmosphere, and close the houses early in the day. As these will be almost the last batch that were potted, afford water sparingly until the roots are active, but syringe freely amongst the pots as opportunity affords. Give the plants an occasional dose of manure-water well diluted.

The hot-bed made up last month will now be ready for inserting cuttings of well-ripened wood.

now require an abundance of air and moisture and less artificial heat, except at night-time. With the increase of solar heat, forcing will not be necessary after the middle of next month. Lightly point the ground over with a fork after dusting the ground with some rich fertiliser, adding a little lime to make it more soluble and sweeten the soil. *J. D. Godwin.*

NOTES ON VARIETIES.

(Continued from page 148.)

ARTHUR R. GOODWIN (1909) is a very promising variety in the Pernetiana class, which apparently perpetuates the prickles and foliage of Soleil d'Or. This is one of the most distinct Roses, the flowers having shades of copper, orange, red, and salmon-pink. It is not so large and full as Lyon Rose with us, and I think it much more pointed in all its stages of opening.

It is very fragrant, and the plants flower freely on lateral growths.

ENTENTE CORDIALE (1909) has much the same habit as the preceding variety, but is a distinct capucine-red, with a yellow base. This was sent out by Guillot, and must not be confused with another Rose similarly named and introduced by Pernet-Ducher. I prefer Guillot's variety.

BETTY (1905).—This variety, which cannot be called a new Rose, is one that has thoroughly established itself in the favour of all. Its petals are very large, and, if not particularly numerous, they build up a grand flower. Its habit of growth is satisfactory, and it is a good autumn bloomer, the flowers, not being excessively full of petals, invariably open well. The buds are among the longest of any, and, in colour, a clear coppery yellow. This Rose is showy from the bud until fully expanded, and it will rank among the best for general decoration.

WHITE DOROTHY PERKINS.—The white sport from Dorothy Perkins (1909) needs no comment, only to say it is an undoubted counterpart, except in colour, to what is now recognised as an indispensable climber for arches, trees, and pergolas. We wanted a white of this stamp.

DELIGHT.—Another good hybrid Wichuraiana is Delight (1907). This is single, and much after the way of Hiawatha (1905), but a bright carmine, instead of scarlet, and much later in blooming, in fact, lasting until growth is stopped. Both have exceedingly showy stamens, are borne in immense clusters, and last much longer in a fresh state than the majority of single Roses.

EARL OF WARWICK (1904) AND OTHERS.—Earl of Warwick was one of the finest Roses all through last summer. The bloom is salmon-pink, shaded with red; it is large, full, of good form, and the plant is a capital grower. An uniquely-coloured Rose is found in Chateau de Clos Vougeot (1908), a variety that, unlike many of the deepest velvet scarlet, does not burn or go dull, but remains fresh to the last. It has bright flashes of vermilion as the light falls on it in different aspects. Maharajah (1904) has proved itself one of the hardiest and most reliable. A very large single flower (I have had them 5 inches across), of the deepest velvety crimson, with rich, golden anthers, and set among very handsome foliage. As a pillar Rose this is excellent, and flowers a little again in the autumn. Irish Elegance (1905) is another single-flowered Rose that is always charming. It is exquisite in the bud stage, and opens into a flower that, for colour, appears to me between the Copper and Yellow Austrian Briers: one of the most profuse bloomers, and sure to please for vase decoration. Of William Shear (1905) I have seen sufficient to feel certain that it is one of the best and largest pale pinks we have. Indeed, this is one of the largest Roses grown. We found it very useful and pleasing last season. Sunrise is undoubtedly a very pretty variety, but it is too tender for the open. Joseph Hill (1904) is a Rose with the same handsome, bronzy foliage, and with a hardy constitution. It is not so deep in colour, but sometimes comes very close to the former variety. Pernet-Ducher wrote to us that they had got a "better-growing Sunrise"; but it is not so good under glass, and the two are quite distinct. My choice would be Sunrise for glass culture and Joseph Hill in the open. Where one needs a good yellow bedder which will give an unlimited number of flowers with great fragrance, Mme. Paul Varin-Bernier (1906) will please. It is a free and yet compact grower, that carries its flowers boldly. These are not very full, but they last well, and it is one of the best late bloomers I know. Lady Ashtown (1904) is very full and of excellent form; it is a deep pink, with a touch of yellow at the base. This is a capital Rose, but I should like it better if the shoots were capable of carrying so heavy a blossom without drooping. The growth of Mme. Segond-Weber (1907) is splendid, and I think it will become one of the most reliable rosy-salmons. It is quite distinct, and the form and substance are good. Perhaps I

should not yet class Molly Sharman Crawford (1908) as most reliable; but, from what it has done here, I have little doubt it will prove so. *Practical.*

SAXIFRAGA BURSERIANA MAGNA.

This is the largest-flowered variety of Burser's Saxifrage that has yet appeared. Its flowers are big enough to satisfy the grower, even in these days when there is much clamouring for size. That the variety is a large-flowered one, whose blossoms almost completely hide the foliage, may be gathered from the illustration (fig. 71); the blossoms when exhibited had a greater diameter than a halfpenny. *S. B. magna* is obviously a selected variety of the typical species. It has the same close, tufted cushions of spiny-glaucous leaves from which issue the 3-inch high peduncles supporting the solitary flowers. For general purposes the variety may be referred to its sister plant, *S. B. gloria*, which obtained an Award of Merit some three or more years ago; indeed, the two varieties have grown together in Mr. Reginald Farrer's Craven Nurseries for some time as *S. B. gloria*, Nos. 1 and 2. That now figured differs from *S. B. gloria* in its larger and handsomer flowers, and its reddish stems, which in the last named are pale green. The flowers are pure white and of great substance, and there is an unmistakable charm produced by the colour contrast of flower-stem and petal. From time



FIG. 71.—SAXIFRAGA BURSERIANA MAGNA: FLOWERS WHITE.

to time, large-flowered varieties of *S. Burseriana* have appeared, bearing such distinctive names as "grandiflora," "superba," "magnifica," "macrantha," and the like, but these have either proved inconstant or stock of them has not been raised, hence Mr. Farrer is to be congratulated on having secured stock of two well-marked varieties during recent years.

As there appears to be confusion in the minds of some who refer to any and every large-flowered variety as "major," the distinct characteristics of the latter may well be referred to here. The plant is virtually a carpeter, the larger and more decidedly silvery rosettes never rising into cushioned tufts as in the type, but spreading laterally. The 3-inch high peduncles like the appearing buds are almost scarlet at first and somewhat paler afterwards. The crimped petals, which are of a rare texture, have undulating margins. The flowers are $\frac{3}{4}$ inch in diameter, and fragrant. By reason of the spreading habit of the "major" form, the flowering is distributed over a larger area, while in the more closely-tufted and cushioned forms, of which *magna* is one, it is no uncommon thing to obtain from a dozen to a score of blossoms from a tuft 2 inches across. All the varieties, excepting *S. B. macrantha*, grow freely in sandy loam, to which sandstone or old mortar has been added, while firm potting and ample drainage are alike essential to success. *E. H. Jenkins.*

FRUIT PRODUCTION OF THE BRITISH EMPIRE.*

SPEAKING for the State I know most about, where the growing of Apples is made a very special business, quite small orchards return handsome incomes to their owners. The official estimates of returns supplied to me from Tasmania show a profit of about £40 per acre from Apple-growing, so that an orchard of 25 acres will return the careful orchardist an income of £1,000 a year. I gather that the growth of many varieties of tropical fruit give even a greater return, though the conditions of life for the grower would not be so pleasant or healthy. The fact that so many varieties of fruit will grow on inferior land, and by inferior I mean unsuitable for general agriculture or mixed farming, enables large tracts of land to be used that would otherwise be waste; further, it permits of closer settlement, and increases the capital value of lands of a country and also its trade.

To give some idea of how it increases the trade of a country, I need only mention that in the case of a small State like Tasmania, with quite a small population, the export of about half a million bushels of Apples to the United Kingdom is sufficient to induce all the mail steamers and most of the large liners trading to Australia to call regularly during the Apple season at Hobart, the capital of the State. When it is remembered that these mail steamers carry hundreds of passengers, whose spending capacity is great, it will be seen that the advantage of the trade to Tasmania is not limited to the return made to

growers for their output of fruit. I have named Tasmania because I know, from my own knowledge, that if it were not for the fruit trade these steamers would not call there, as the shipping in connection with most of our other industries would be carried on by smaller vessels carrying to and transhipping into larger vessels at one or other of the great shipping ports of the Commonwealth. We must therefore credit the fruit production with the whole of the trade advantages secured. As it means so much to a very small spot in the Empire, what must it mean to the larger States and Dominions, and to the Empire as a whole. I claim that of all land industries, viewed from the standpoint of importance to the Empire, the fruit industry follows immediately after Wheat and wool. I should perhaps mention that another important industry, connected with fruit growing in temperate climates, is jam making, while in tropical and sub-tropical countries we have the dried-fruit industry and manufacture of wine. Every variety of fruit and every industry connected with fruit flourishes in some part of our great Empire; in this connection the Empire can claim to be independent of other countries.

Cold storage and the drying of fruit secures for the residents of one part of the Empire the advantage of being able to enjoy the fruit of the most distant parts. If it is not quite intact in quality after the lengthy journey and treatment, it is still a wholesome food possessing all

* Extracts from a paper by Dr. Jno. McCall, Agent-General for Tasmania, read before the Royal Society of Arts on March 1.

the health-giving qualities of fresh fruit. I believe that to the citizens of the most distant outpost of the Empire (Tasmania) the credit is due for having made the early experiments in connection with the carriage of Apples in cool store over long sea distances. It was found necessary for them to secure other markets for their surplus, and though at the time England was expected to consume all the surplus, as a matter of fact fruit is now carried to many other parts of the Empire and in increasing quantities to other countries. If it be thought I speak too much of Apples I would justify my remarks by saying that of all fruit imported into the United Kingdom from other parts of the Empire, Apples represent by far the greatest in aggregate value. When I mentioned that inferior land has been made very valuable by the introduction of fruit-growing, I had in my mind only the land that required no special treatment by way of preparation, but there are also in Australia, at Mildura, in the State of Victoria, loamy wastes which have been converted by means of irrigation into most valuable fruit-growing lands. There, sub-tropical and tropical fruits grow luxuriantly, and it is hoped that the extension of this great work will enable Victoria to supply dried fruits in sufficient quantities to satisfy the demands of the Commonwealth, and to contribute largely to the wants of the Mother Country.

There are subsidiary interests in connection with fruit growing besides jam making and wine production; there is basket-making for small fruit, bottles and tins for fruit and pulp, timber for cases and barrels; and another industry I hope to see extensively taken up in connection with orchards is the keeping of bees, for it has been successfully demonstrated that cross pollination (i.e., introduction of foreign pollen into the blossoms) improves the size and quality of the fruit. For this purpose nothing can be better than keeping beehives in the orchards or in very close proximity to them. It will be at once seen that the introduction of bees in connection with orcharding secures two extra profits for the orchardist; first, there is the improved value of the fruit, and then the return from the honey. If properly attended to, each hive may be expected to give a return of 200 lbs. weight of honey—under the old system, I believe, 80 lbs. was the highest amount obtained. I shall now incorporate the figures I have been able to compile showing the total area under fruit in the various divisions of the Empire:—

ACREAGE OF ORCHARDS AND VINEYARDS IN THE BRITISH EMPIRE.

	Acreage.
India (1906-7), including vegetable gardens ...	4,020,136
Ontario (1904) ...	338,255
United Kingdom (1907-8) ...	335,177
Cape of Good Hope (1904) ...	72,590
Quebec (1907) ...	77,416
Victoria, Australia (1908-9) ...	75,105
Nova Scotia (1907) ...	54,051
New South Wales (1904-5) ...	51,808
South Australia (1907-8) ...	41,816
New Zealand (1904-5) ...	29,217
Queensland (1908-9) ...	25,334
Tasmania (1908-9) ...	25,146
British Columbia (1905) ...	22,000
West Australia (1908-9) ...	18,049
Natal (1905) ...	37,590
Ceylon ...	1,016,138
Jamaica ...	63,029
Total acreage ...	6,302,917

Canada, in 1901, the last year for which reliable statistics are obtainable, produced:—

Apples ...	18,626,186 bushels.
Peaches ...	545,415 "
Pears ...	531,837 "
Plums ...	557,875 "
Cherries ...	336,751 "
Other fruits ...	70,396 "
Grapes ...	24,902,634 lbs.
Small fruits ...	21,707,791 quarts.

Since that year the acreage under fruit has been much extended, and the production considerably increased.

Although in the fruit-growing provinces of Canada all hardy fruits, such as Plums, Apricots, Cherries, and Strawberries are largely grown and justly esteemed, yet it must be conceded that it is as an Apple-producing country that she is best known. When it is recalled that Apple trees were introduced there prior to 1663, and that the modern orchards of the Annapolis and Cornwallis valleys were founded at the latter part of the eighteenth century, it is not surprising that the production at the present time has reached such

enormous proportions and the export trade attained such importance. Ontario alone has an annual average value of the industry of over seven and a half million dollars. Nova Scotia's output of Apples alone reaches half a million barrels. British Columbia, which ten years ago did not produce sufficient for its own needs, is now exporting, and has an average value in fruit produced exceeding one million dollars. I regret that it is not possible to furnish full and uniform statistics giving the export of fruit in the Dominion, but the figures and returns of the output for 1901 (the latest available), viz., 20,668,460 bushels and 24,332,634 lbs., are eloquent of what has been and is being accomplished in Canada. The nearness of the English market and the fact that the voyage being very temperate and short obviates the necessity for the fruit to be placed in cool stores on board, is a great asset to the grower and shipper, enabling him to pack and ship more cheaply than his confreres of Australia and South Africa. Apart from the importance of this large export trade to Canada, the fact that Apples can be delivered here so cheaply is a great boon to the poorer classes, who are unable to purchase fruit at high prices.

ducted with a view to ascertaining the best and most economical method of shipping Grapes, and the best kinds to send; nevertheless the import of Grapes to this country last year reached the satisfactory total of 32,323 boxes. Apples are not grown to any extent, but it has been proved at the Hey River Valley fruit-growing district that they can be cultivated and brought to a high state of excellence. It is simply a question of locality. Peaches, Pears, Plums and Apricots, and many other temperate fruits, grow in the west of Cape Colony, certain parts of the Karoo midlands, and in the higher altitudes of Natal. Citrus fruits such as Oranges, Lemons, Grape Fruit, and Naartjes are grown.

(To be continued.)

HYBRID RICHARDIA.

THE flower shown in the illustration (fig. 72) is a hybrid Calla raised from a cross made in May, 1906, between *Richardia* Mrs. Roosevelt ♀ × *R. Rehmannii* violacea ♂, the pollen parent being an exceptionally deep coloured specimen.

R. Mrs. Roosevelt is itself said to be a hybrid, and, it so, its habit, form and comparative



FIG. 72.—HYBRID RICHARDIA (*R. Mrs. Roosevelt* ♀ × *R. Rehmannii* violacea ♂): SPATHE PANSY-VIOLET BELOW, REDDISH TO VIOLET-PURPLE ABOVE.

SOUTH AFRICA.

No figures are obtainable as to the total production of fruits in South Africa, but Grapes are the principal fruit grown, the vineyards being nearly 50 per cent. of the total area under fruit cultivation. Fruit culture in South Africa is practically in its infancy, and every effort is being made by the different Governments to foster an industry which is yearly becoming more important and remunerative. Already we are familiar with Peaches, Plums and Pines from that part of the world. The Governments of the Cape of Good Hope and Natal have adopted an active policy of encouraging the growers to produce for the English market. This will undoubtedly tend to increase areas under fruit culture, and the produce can be delivered here at a time when fresh fruit is scarce, and prices tempting. At the same time, the local demand in the large mining centres must be great, and the supply of fresh fruit to those places should, for a long time, insure the South African fruit-grower from the risk of over-production. I am not, however, losing sight of the fact that carriage to such centres may be at once difficult and costly. Viticulture is practically confined to the Western Province of the Cape of Good Hope. About 50 per cent. of the orchard area of that colony is under vines. Experiments are still being con-

hardiness would suggest *R. africana* × *R. Elliottiana*; but I have flowered a species sent to me from Natal which is very similar, and in absence of certain evidence I should hesitate to accept its reputed hybrid origin. I have also seen an unsupported statement that it is a hybrid of *R. albo-maculata* × *R. Elliottiana*, but from the form of the spathe this is probably a mistake, that of *albo-maculata* being even more stiff and funnel-shaped than *R. Elliottiana*, while *Mrs. Roosevelt* approximates more to the opener, laxer form of *R. africana*.

R. Mrs. Roosevelt grows 2 to 3 feet high, has large, open spathes, pale primrose or sulphur-coloured, with a deep purple base inside, and the large, broad, sagittate leaves are freely spotted white, almost, if not quite, as much as *R. Elliottiana*. *R. Rehmannii* violacea is only 9 inches to 1 foot high (with me), and is a much smaller plant in all its parts. The spathe is small, stiff, and funnel-shaped, and coloured a rosy-violet, deepening to dark violet-purple at the base. The leaves are comparatively small and narrow, hastate or lanceolate-shaped.

The hybrid is intermediate. It is a strong plant, rather nearer *R. Mrs. Roosevelt* in habit and vigour and hardiness. It has four leaves

at flowering, the flower scape being 2 feet high. The blades of the leaves are about 10 inches to 11 inches long, nearer Mrs. Roosevelt in size and form, but rather more pointed or hastate-shaped towards the ends. There are a few elongated and irregular white spots (about 20) confined to the median portion of the blade. The spathe is intermediate in size, form and substance. The colour of both parents is also represented in the hybrid, but apparently is not blended. The red-violet of *R. Rehmannii* overlies the primrose of Mrs. Roosevelt, and being spread over a larger area is rather weaker. The colour at the base inside the spathe is a deep pansy-violet (*Reper-toire des Couleurs*, No. 191, tone 4), thinning out gradually to a reddish, violet-purple (*R. de C.*, No. 185, tones 4 to 1, or lighter), with the primrose ground showing through towards the edges. The outside of the spathe is also veined with purplish veins, very well shown in the illustration, as in *R. Rehmannii*. *A. J. Bliss.*

VEGETABLES.

RUNNER BEANS FOR EXHIBITION.

THIS crop likes rich living and a deep root-run, and those who care to follow these directions will reap a good harvest next autumn. First dig out a trench, the width of which may vary from 1½ feet to 2½ feet, according to the materials at hand. Next put in a layer of manure, pig manure for preference, or, failing this, that from a cowshed. It is difficult to say just how much to put in, but from 4 inches to 6 inches thick is about right. This manure may be roughly turned in with a fork, and a portion of the earth at the sides spread over it. After leaving it for a while, work along the trench again with the fork, and finally replace the whole of the earth dug out at the start.

If the cultivator intends to exhibit the Beans, he should purchase seeds of one of the best exhibition varieties, spread them out on the vinery floor and lightly cover with sandy soil, slightly damping them. In a few days they will have "speared," and, when in this condition, are very suitable for planting, as the strongest and finest Beans can be selected. Draw two shallow rows in the prepared soil over the trench, and plant the Beans in single rows quite 6 inches to 8 inches apart. Before covering in with soil, apply a liberal dusting of quicklime. As very strong growths may be looked for, the best plan, when sticking, is to get extra strong chestnut boughs and give plenty of width to the row. As soon as the hot weather commences, give a good top-dressing of fairly rough stable manure, and when water is needed liquid manure should be applied. Runner Beans flourish on diluted sewage. *P. P.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Pleiones.—Such sorts as *P. maculata*, *P. lagernaria*, *P. precox*, and its variety *Wallichiana* are growing vigorously; therefore they will require more water at the root; they should not be syringed overhead for another month to come. A very light spraying under the leaves will be beneficial so long as the water does not enter the growths. Elevate the plants well up to the roof of the Cattleya or intermediate house, and, for the present, shade them from strong sunshine.

Cypripedium concolor. In close proximity to the *Pleiones*, this difficult species thrives well. The plant is in a shallow pan containing a compost consisting of fibrous loam, freely intermixed with small crocks, and it is potted like one would an ordinary greenhouse plant. During winter only a little water is afforded about once a week, and at other times the soil is lightly sprinkled whenever the surface appears to be dry. The plant has been suspended in the same position, on the west side of the Cattleya house, for the past six years, and still continues to grow and bloom satisfactorily.

Mexican house.—In this house *Odontoglossum citrosimum* is starting into growth, but the plants should not be disturbed by repotting nor unduly excited into making any rapid advance, or they

might grow away and produce no flower-spikes this season. Keep them in the cooler part of the house, and withhold water from the roots until the flower-spikes are seen pushing up through the centre of the young growths. The plants should then receive abundance of water both at the root and in the atmosphere, and on bright, sunny afternoons a light spraying overhead will be beneficial to the growth and flower-spikes. Those plants which show no signs of flowering within the next few weeks should be rested no longer than that time, for no further amount of resting will cause the plants to bloom. Plants that are grown down on the stage should be carefully watched for slugs and woodlice, or many spikes will be lost. In the same house such plants as *Lelia anceps* and its varieties will have done blooming, and no time should be lost in supplying fresh material or larger receptacles to those that require this attention. Either pots or shallow pans may be used, and these must be well drained. Make each plant quite firm with the best *Osmunda* fibre; a little *Sphagnum*-moss may or may not be used, according to the discretion of the grower. I prefer not to use any moss for these plants. Strong, well-rooted plants that are in sufficiently large pots, need not be disturbed unless the soil has become sour, in which case it should be carefully picked out and fresh material substituted. In potting established plants, do not disturb them more than is necessary, or they will not bloom satisfactorily. All useless back-bulbs should be cut away, as it will be necessary only to leave just two or three pseudo-bulbs behind each leading growth. After repotting, extra care must be taken not to over-water the plants. After the first week, it will be sufficient to moisten the surface of the compost with a sprayer or fine-rose watering can, without wetting the bulbs or rhizomes, and to damp the stage between the pots on fine afternoons. For the present the night temperature should range between 55° and 60°, increasing gradually as the daylight lengthens. It matters little how high the temperature rises by sun-heat, providing plenty of fresh air is admitted. When young roots make their appearance from the last-made pseudo-bulbs, they must be carefully protected from woodlice and cockroaches, as these do considerable damage in one single night.

Calanthes.—The deciduous section of *Calanthes* will soon be ready for repotting. The principal soil needed for them is good, fibrous loam, which should at once be carefully picked over, and laid in a suitable place, so as to become just lukewarm before it is made use of, otherwise the plants and young growths may receive a check. Cow dung should be collected and exposed to the sun till it is fairly dry, when it may be chopped up and rubbed through a fine-meshed sieve, turning it over occasionally until quite dry.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Leeks.—The main sowing of Leeks should now be made in drills drawn 1 foot apart and 1 inch deep. The Leek is a gross-feeding plant, and it should, therefore, be given a liberal supply of manure. There is every encouragement to grow Leeks to a large size, as the finest specimens are superior in flavour to those of ordinary dimensions. Where a considerable quantity is required, it is best to trench the ground in autumn, and allow it to remain rough throughout the winter. At the time of planting, deep drills should be drawn with a hoe 18 inches apart, and the young Leeks planted 1 foot apart with an ordinary garden dibber. A frequent stirring of the soil will fill up the drills, and produce blanched stems of sufficient size for ordinary purposes. As soon as the plants are established they may be given liberal waterings with liquid manure. Leeks that were raised in boxes early in January should be kept in a temperature of 50°, admitting sufficient air to keep the plants from becoming drawn. They may be planted into the trenches in the middle of April. These trenches should be so prepared and manured that the Leeks will develop into the best specimens possible. When planting, let the roots be placed close down to the manure and only cover them with a small quantity of soil, leaving the remainder to be filled as the plants require earthing up.

Brussels Sprouts.—Sow seeds for the main crop on a sheltered border. Plants raised from this sowing, though not quite so early as those raised under glass, may, all the same, give better returns. Brussels Sprouts must be given plenty of room to develop; for the taller varieties, 3 feet each way is none too much. Sutton's Dwarf Gem is a sturdy variety, and may be planted 2½ feet apart in rows 3 feet apart.

Cauliflowers.—Sow seeds of Early London, Autumn Giant, and Halloween Giant. These varieties should be capable of maintaining a succession until late in autumn when Veitch's Autumn Broccoli, sown in the first week of April, should come into use. Other varieties of Broccoli should be sown in the middle of April. The ground for Cauliflowers and early Broccoli can scarcely be made too rich, but for Broccoli that are intended to stand throughout the winter, rich ground should be avoided.

Celery.—If the main crop of Celery has not been sown, this should be done at once. The seeds may be sown in a pit where there is a gentle bottom heat, and where the lights can be removed on fine, sunny days later in the season. Celeriac should also be sown; this plant requires the same treatment as Celery.

Cucumbers.—Plants in full bearing should be given frequent waterings with liquid manure at a temperature of 70°. When plants are growing and fruiting freely there is little danger of giving them too much stimulant, provided the latter is not too strong. Top-dress the roots with equal quantities of loam and leaf-mould whenever they can be seen above the ground. It is better to apply light top-dressings frequently than larger quantities at longer intervals. Remove old shoots and leaves from the established plants to make room for young growth. It is not good practice to stop young growths during the winter months, but now that the plants are growing freely they should be pinched at the second joint beyond the fruit. Cucumber plants may now be planted in flat pits, if gentle hot-beds can be made for them. If portable frames are used, the beds should be made at least 4 feet larger than the frames to allow room for linings of hot dung and leaves to maintain the temperature of the pit.

Tomatos.—The plants potted some weeks ago will now be swelling their fruits, and therefore they need liberal waterings of liquid manure. As soon as each plant has set four trusses of fruit, the tops may be pinched, and the temperature of the house increased to 70° in mild weather at night. The heat may be allowed to rise to 80° during the day by sun-heat.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Cob-nuts and Filberts.—If the necessary pruning and thinning of the branches has not already been done, this may be effectively carried out at the present time, as the trees are now in flower, and it will be easy to distinguish the fruitful wood from the barren shoots. It is much better to trim the trees annually than to allow them to become a tangled mass of crowded growths which would necessitate the removal of a large number of shoots at one time and thus cause a check. The cultivator should aim at keeping the centre of the trees well open, therefore branches growing inside, those that cross one another should be removed, and also any long, straggling branches that would give the trees an ungainly appearance. The Nut will succeed in almost any kind of soil, provided it is well drained. Some varieties produce few male catkins, and this is often the cause of a shortage of Nuts, but Pearson's Prolific never fails to give plenty of pollen, and for this reason it should be included in the plantation. If at any season there is a scarcity of male flowers, obtain branches of the common Wood-nut that are well furnished with catkins, and shake them over the trees on a fine morning, and leave the cut branches in the trees afterwards. The Nut weevil is a troublesome pest to this crop. It may be checked by dressing the ground under the trees with soot and quicklime well mixed together. Hoe this mixture well into the soil, and stir the ground frequently with the hoe during the summer. Shaking the trees occasionally during July and August will cause a number of the infested Nuts to fall, and these should be gathered up and burnt.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Cyperus alternifolius.—During its season of active growth, this plant revels in an abundance of moisture at the roots. The variegated variety should be potted in not over-large pots, and plenty of charcoal and sand should be employed in the compost.

Panax Victoria.—Insert cuttings whenever suitable; for the purpose are obtainable during March and April. Place about four or six cuttings around the edges of small pots; if kept close and moist for a week or two they will form roots freely.

Begonia Gloire de Lorraine.—If good-sized specimens are desired for an early display of blossoms during the autumn, cuttings should be inserted as soon as they can be obtained. Select shoots that spring from the base of the plants and insert them singly into thumb-pots filled with leaf-soil and silver-sand. An important item in the successful culture of this Begonia is not to press the soil firmly about the roots. The roots are soon injured, and great care must be exercised when repotting the plants. This Begonia delights in a close, moist atmosphere and a temperature of about 60°. Begonia Agatha has larger flowers of a deeper shade of pink than those of B. Gloire de Lorraine. B. Agatha compacta is a miniature form very suitable for table decoration. Cuttings of both these varieties may also be inserted now. Their requirements are similar to those recommended for B. Gloire de Lorraine.

Perpetual flowering Carnations.—The earliest batch of cuttings will now be ready for repotting singly into small pots. An open, porous compost, mixed with a liberal quantity of sand, should be employed. After potting them, place the plants as near to the glass as convenient to ensure a sturdy growth. Snade them from bright sunshine during the hottest part of the day, and syringe the foliage daily whenever the weather conditions are favourable. Any plants that have not formed side branches should have their shoots pinched after they have recovered from the effects of repotting.

Souvenir de la Malmaison Carnation.—The earliest plants are now producing a supply of flowers which are much appreciated. Any in vigorous health that promise a crop of later flowers should be given an occasional application of some approved fertiliser. A light top-dressing of wood-ashes will have the effect of improving the colour of the blooms. Autumn layers, which were treated as advised early in the New Year, are showing their flower-spikes. These should be secured to stakes, and, if colour is deficient in the foliage, the ordinary watering should be alternated with applications of clear soot-water.

Chrysanthemum.—The earliest rooted plants will require a shift into larger pots. Stop such varieties that do not break naturally. Batches of late varieties may still be rooted, and the main batch of cuttings of early varieties may also be inserted now.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to SIR ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Pineapples.—Any plants bearing fruit showing signs of ripening may be removed to a cool, well-ventilated Peach house or vinery, for if the fruits mature in such conditions, the flavour will be the better developed. Means must be taken to protect them from vermin. Do not apply any more water to the roots than is needed to prevent the fruit from shrivelling. Plants bearing fruits in course of development may be given liberal and frequent supplies of diluted manure water, and the atmosphere must be kept hot and moist. Later plants, in flower, need a drier atmosphere, and every care must be taken to prevent water falling on the inflorescence. Any repotting that is necessary may be done at once. The soil should be first put into a warm shed, as it is injurious to use it in a cold state. A suitable compost consists of fibrous loam two-thirds (shaking out all the fine particles from it) and horse droppings and lime rubble one-third, with a sprinkling of soot. Select first the strongest plants, tie up the leaves very carefully, removing any which are decayed. Place the plant in the centre of the pot, keeping it per-

fectly upright, for if this is not done, the crown will not develop erectly. The ball of soil and the new potting compost should both be fairly dry when the process is commenced, it being necessary to ram the compost perfectly firm, especially round the collar of the plant. For The Queen variety 10-inch pots are sufficient, but for the varieties Cayenne and Rothschild larger pots may be utilised.

Successional plants.—These will have plenty of room if potted into 7-inch or 8-inch pots, using a similar compost to that already described. When rearranging the plants, place the stronger of them at the warm end of the house, and provide them with a slight shade for a few days, applying water very sparingly until the roots have become active. Keep the atmosphere of the house well charged with moisture, and spray the plants overhead once or twice each day. The atmospheric temperature should range from 65° to 70° at night, allowing an increase during the day with sun-heat to 85° to 90°. Admit air for a short time at mid-day, but close the ventilators sufficiently early in the afternoon to retain a little sun-heat. If a fresh plunging-bed is made to receive the plants after potting, see that the heat does not become sufficiently strong to injure the roots. It is sometimes necessary to stand the pots on the surface-bed a few days until the heat declines.

Tomatos.—Plants which were raised in the autumn, and are now in small pots in a cool house, may be transferred to the fruiting pots or to borders. The best compost is one consisting of fibrous loam, roughly broken up, with the addition of a little lime rubble. It is not advisable to add manure to the soil, as this tends to produce strong, unfruitful growth, and the plants are apt to attain a considerable height before bearing. Later, manure may be applied freely to plants bearing good crops. Ram the soil firmly about the roots to induce sturdy growth, and, where pots are used, leave sufficient space to provide for top-dressings. Place the plants in a light, well-ventilated house, where a heat of 55° to 60° may be maintained at night, rising to 65° or 70° by day. The atmosphere should be kept fairly dry, and the roots need to be watered very sparingly until they are growing actively. As soon as the plants come into flower, tap the stems smartly with the knuckle about mid-day in order to distribute the pollen, thus setting the flowers. Train the plants to a single stem and pinch out all the side shoots as they appear. Seedlings raised in January must be kept on shelves well up to the light. Repot them into larger pots as this becomes necessary.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VISCARY GIBBS, Aldenham House, Hertfordshire.

Climbers.—These will need pruning, nailing and training before active growth commences. The majority will be much benefited by the removal of surplus and unnecessary growths. If poles are employed, carefully examine them and replace any that are faulty or not likely to remain firm for another season. Larch poles in a rough condition make excellent supports for the majority of subjects; large ones may be made additionally secure by placing struts at 3 or 4 feet from the ground level. The wood of which pergolas are constructed should also be examined. No hard-and-fast rule can be laid down as to how the pruning is to be carried out, but a study of the growth is the best guide. Endeavour to encourage the kind of wood which produces the greatest amount of flower. A selection of choice climbers should always include Clematis; C. Jackmannii is a well-known hybrid of garden origin and blooms profusely in the late summer and autumn months on the new wood. Prune closely each spring and leave sufficient main shoots to furnish the trellis or pergola. C. montana and the two newer varieties Wilsonii and rubens flower from the old ripened wood and do not require much pruning, except an occasional thinning. C. viticella and its varieties need a similar treatment to C. Jackmannii, as do also the beautiful hybrids of the C. lanuginosa type and the bell-shaped C. Vioria. Actinidia chinensis is a free-growing, beautiful climber, suitable for a warm position, as is also Jasminum primulinum. The many species and varieties of Vitis are also useful. These have been considerably augmented recently by intro-

ductions from China. A few of the most striking are Vitis megalophylla, V. armata, V. a. Veitchii, V. Thomsonii, V. repens, V. Henryana, V. flexuosa Wilsonii, V. Coignetia, V. Thunbergii, and the varieties of V. vinifera, the common vine. Periploca graeca, known as the Silk Vine, is an interesting subject, and grows freely on a north aspect. Polygonum multiflorum and P. Baldschuanicum are rampant growers and well adapted for quickly covering arbours or unsightly places, as are also the various Loniceras, Wistarias, and Hederas. Cæsalpinia japonica, Berberidopsis corallina, Tecoma radicans, Ercilla or Bridgesia spicata, Solanum jasminoides, Magnolias, species of Escallonia, Chimonanthus fragrans, Choisya ternata, and Carpentaria californica are also well suited for growing against walls, but in many parts of the country they will need some protection in winter. Those that are not self-clinging will require neatly nailing, after the decayed growth has been removed.

Paths and Lawns.—Where renovation is needed, these should now be attended to without delay. Gravel paths that have become worn should be loosened, raised towards the centre and a fresh coating of gravel applied and well rolled. Lawns that have become bare through constant wear and the continuous wet weather, or in shady and dark places under trees, should be returfed. Whenever the ground will allow, give the lawns a good brushing and rolling.

The frame ground.—With the lengthening days, the plants in the frames will require constant attention in the matters of ventilation and watering. Give fresh air whenever the weather allows, and, when watering is necessary, apply it early in the morning, when the weather is warm. Guard against cold at night-time, as at this season severe frosts are likely to occur. Seedlings and other plants newly transferred to these quarters must be kept close for a time; while light syringings in bright weather are beneficial, an excess of moisture must be avoided.

THE APIARY.

By CHLORIS.

A beekeeper's requisites.—The only dress a beekeeper requires is a black net veil, which is cheaper to make than to purchase. Buy a piece of coarse black net 36 inches by 18 inches, sew the ends together, hem round the top, and in this run a piece of elastic, sufficiently tight, to grip the crown of the hat. The very timid wear rubber gloves to protect the hands, but when gloves are worn the manipulation is apt to be clumsy, and this irritates the bees and leads to more stinging. A good "smoker" is indispensable to subdue the bees before opening the hive. The fuel chamber should be large, so that it will not be necessary to refill it frequently. Foundation must be purchased; that for the brood chamber being eight sheets to the pound where no wiring is used, but, if wired, then nine or ten sheets to the pound may be utilised. The base of the foundation will be that of the "worker" type. It is wise to purchase the best wax foundation, for bees seldom take kindly to adulterated foundation. Neither is there any gain in using less than whole sheets of foundation when fitting up frames, for the bees usually fill in the remaining space with drone comb. The foundation for sections should be "extra thin" and of "worker base," whilst that for shallow frames is best with "drone base," and in both instances the whole sheets are most economical. The sections are purchased in the flat, the 1-lb. kind are those most commonly used, and they may have two or four bee ways. Some beekeepers prefer the former, because there is less cleaning required when they are taken off the hives, and very little, if any, advantage is gained by using the four bee way sections. Those grooved and having a split top are more easily fitted up with comb than other kinds. To space the frames, both brood and shallow, it will be well to purchase metal ends of two widths of the "W.B.C." type. The brood should be separated from the storing chamber by means of queen-excluder zinc, then, if shallow frames are used, it will save time and expense if a centrifugal extractor is purchased at once to extract the honey from the combs. To clear bees easily from supers, a "super clearer" is of great advantage. For taking swarms every beekeeper ought to have a straw skep.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MARCH 14—
Ann. Meet. United Hort. Ben. and Prov. Soc.
THURSDAY, MARCH 17—
Torquay Fl. Sh. Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—42.3°.

ACTUAL TEMPERATURES.—
LONDON, Wednesday, March 9 (6 P.M.): Max. 53°; Min. 49°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, March 10 (10 A.M.): Bar. 29.8; Temp. 49°; Weather—Overcast.

PROVINCES.—Wednesday, March 9: Max. 52° Cambridge; Min. 43° Ireland N.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Border Plants, Lilioms, and Hardy Bulbs, at 12; Roses and Fruit Trees, at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

TUESDAY, WEDNESDAY, AND THURSDAY—

Unreserved Sale of the fifth portion of Nursery Stock at St. John's Nurseries, Worcester, re R. Smith & Co., by Protheroe & Morris, at 11.30.

WEDNESDAY—

Herbaceous Plants, Lilies, Bulbs, &c., at 12; Trade Sale of Miscellaneous Bulbs and Plants, at 12; Roses and Fruit Trees at 1.30; Japanese Lilioms in cases at 2; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

A further portion of the "Chillingham" Collection of Orchids, at Protheroe & Morris' rooms, at 1.

Natural Sterilization of Soil.

As our readers are aware, experiments carried out by Messrs. Russell and Hutchinson at Rothamsted have thrown an entirely new light on the origin of the enhanced fertility brought about by soil-sterilization. That soils sterilized by heat or by certain poisons such as carbon-bisulphide yield larger crops than similar unsterilized soils has been demonstrated by various observers. A full account of the explanation, given by the authors just referred to, of the mode of action of the sterilizing agent was published in these columns on October 23, 1909. Briefly, it amounts to this, that heat or poisons kill out those organisms, such as amæbæ and infusoria, which normally prey on the soil-bacteria. Certain of the soil-bacteria are also destroyed. Those which remain have the field to themselves, and hence increase and multiply exceedingly. In the absence of competing organisms, the supplies of nitrogen-compounds in the soil are the more available for the crop, which, in consequence, flourishes more abundantly in the sterilized soil than in one in which occur multitudes of organisms all hungry for nitrogen. The nitrogen compounds of the soil go into the plant instead of being shared between the plant and the teeming "population" of the soil. An interesting application of this sterilization hypothesis is made by Messrs. A and G. L. C. Howard in a recent issue of *Nature*.

It appears, according to these authors, that

the Indian ryot has practised a kind of summer fallowing or weathering from time immemorial. During the months of April and May he exposes the alluvial soil of the Indo-Gangetic plain to the burning sun. Where the soil is light it is ploughed by means of the native wooden plough; where it is heavy it is, however, not worked—owing, apparently, to the lack of suitable tackle—until the arrival of the monsoon rains.

The effect of the exposure of the worked, light soil to sunlight is remarkable, the beneficial result on the succeeding crop being equal to that which would be obtained by the application of nitrogenous manure. Messrs. A. and G. L. C. Howard suggest that the effect of the intense sunlight is to partially sterilize the soil, and thus to induce in the soil similar changes in micro-flora and fauna as are effected by artificial sterilization. Thus, if we accept this explanation, the summer weathering has precisely the same effect as a dressing of nitrogenous manure, in that it renders nitrogen compounds available to the crop. The destructive action of sunlight on bacteria has been demonstrated experimentally, and is, of course, exploited constantly by thrifty housewives, as, for example, in exposing bedding and other household effects to bright sunshine.

The detailed effects of sunlight on soil bacteria have not yet been investigated. We may predict confidently that results of the greatest practical importance will be obtained from such investigations. It is, at all events, probable that the secret of the origin of the nitrate beds of S. America, whence are derived the bulk of our supplies of nitrate of soda, is bound up with the partial sterilizing effect of sunlight.

Nor is it at all impossible that the soil lying in the deep shade of trees might not be ameliorated by sterilization. Anyone who has the opportunity might well try the effect of sterilizing such soils in which little will grow, by means of copious waterings of carbolic acid or permanganate of potash, and then determining whether Grass and other plants would not succeed better than in similar unsterilized soils. Of course, it is not suggested that shaded soil so treated will become fully fertile, for evidently sterilization cannot serve a plant in lieu of sunshine: nevertheless, it is probable that some amelioration might be effected. In any case, the investigation of the bacterial flora of the soil, which is bound to be of no small service to horticulture, should receive a powerful stimulus from the work of Messrs. Russell and Hutchinson.

OUR SUPPLEMENTARY ILLUSTRATION.—

Mr. WORTHINGTON G. SMITH'S drawing of *Eucalyptus cordata* was prepared from specimens sent us by Mr. A. J. MORGAN, Porthgidden Gardens, Deroran, Cornwall. In a note on this plant's usefulness as a bedding subject by Mr. MEIVILLE, Superintendent of Finsbury Park (see *Gardeners' Chronicle*, December 11, 1909, p. 405), the writer referred to a specimen at St. Anne's, Clontarf, Co. Dublin, which had survived the winters without any protection since 1905. Several correspondents wrote afterwards on the question of the plant's hardiness or otherwise. According to Mr. A. C. BARTLETT, young trees of *E. cordata* at Pencarrow, Cornwall, were killed by 20° of frost. It would thus appear that

situation and soil, as well as locality, must be taken into account, for Mr. MORGAN states that the Porthgidden specimen has formed a tree 25 feet high. Mr. MORGAN further informs us that "it was planted about four years ago, and flowered very freely last year, and is again well set with flower-buds. It has a very graceful habit, and in places where it will grow without protection during winter makes a fine specimen plant." There appears to be very close affinity between *Eucalyptus cordata* and *E. pulverulenta*. Mr. BARTLETT states that they differ only in the size of the leaves, but, according to Sir JOSEPH HOOKER, in the *Botanical Magazine*, vol. lviii., tab. 7385, *E. cordata* has crenulate margins to the foliage, and the calyx tube is rounded at the base, whereas the leaves of *E. pulverulenta* are entire or obscurely crenulated, and the calyx tube narrowed at the base. But these distinctions appear to break down in our specimens of *E. cordata*, for, although the leaves are distinctly crenulate, the calyx tube is restricted at the base, not as figured in the *Botanical Magazine*, tab. 7385, where they appear as round as Acorn cups. *E. cordata* is said to be confined to Western and Southern Tasmania, and *E. pulverulenta* to New South Wales; therefore, it may be the case there are geographical forms of the same species. A letter on the subject just received from Mr. MAIDEN (see page 169), director of the Botanic Gardens, Sydney, states that *E. cordata* is a common species on the higher mountains of Southern Tasmania, and, in reply to Mr. BARTLETT (see p. 422, vol. xlv.), that the seedsmen of Hobart can supply seeds in any quantity. The confusion between *E. cordata* and *E. pulverulenta* was apparent as far back as the early part of last century, as will be seen on reference to vol. xlv., tab. 2187, of the *Botanical Magazine*. A kind of compromise, making the two plants synonymous, was apparently adopted to solve the difficulty.

LINNEAN SOCIETY.—A meeting of the Fellows of this Society will be held on Thursday, the 17th inst., at 8 p.m., when the following papers will be read: 1, "The Life-history of *Chermes himalayensis* on the Spruce (*Picea Morinda*) and Silver Fir (*Abies Webbiana*)," by Mr. E. P. STEBBING; 2, "A Contribution towards a Knowledge of the Neotropical Thysanoptera," by Mr. R. S. BAGNALL.

MR. ALEXANDER KIRK.—Owing to the death of Mr. THOMAS PATON, the proprietor of Norwood, Alloa, Mr. ALEX. KIRK will retire from the charge of the gardens there in May next. Our readers are familiar enough with the success Mr. KIRK has obtained as an exhibitor of choice fruits during the 30 years he has been at Norwood. He contributed, a few years ago, in these pages the weekly Calendar on "Fruits under Glass." We hope that an opportunity will soon present itself for Mr. KIRK to again employ his skill in fruit cultivation and general gardening.

ARBOR DAY AT LETCHWORTH.—A public Arbor Day was celebrated at the Letchworth garden city on Saturday, the 5th inst. The first specimen was planted by Mr. R. HOOPER PEARSON, who delivered an address. The trees were varieties of *Pyrus Malus*, several hundreds being planted by inhabitants and school children, who marched to the site in procession, headed by a band. Having regard to the small number of trees on the estate, it is particularly unfortunate that the Elm-bark beetle continues to cause great destruction, notwithstanding the energetic measures taken by Mr. COLE to destroy the pest. It is feared that very few of the old Elms will be saved.

THE BIRMINGHAM BOTANICAL GARDENS.—

We have received an attractive booklet containing a description of the Edgbaston Botanical Gardens, Birmingham, and illustrations of the famous rockery, the interior of the Victoria Regia house, and the Rhododendron ground. Those who remember the square block of Rhododendrons that was formerly a feature of these gardens, will be surprised at the attractive manner in which the plants have been grouped by the present capable curator, Mr. THOMAS HUMPHREYS, "late of the R.H.S. old gardens at Chiswick." Notwithstanding the fact that many of the Rhododendrons were very large plants, the bed was entirely lifted four years ago, and replanted in irregular groups intersected by a broad, straight walk leading from the Alpine garden and terminating in a serpentine path. It appears that the maintenance of these gardens, which were established before the middle of last century, necessitates an annual expenditure of about £2,000. This sum is obtained partly by subscription, and partly by receipts from gate money and other sources. The subscriptions amount to only £900, and this sum is contributed by some 800 members. The president the Right Hon. Lord CALTHORPE, and the committee, of whom the chairman is Professor I. H. POYNTING, D.Sc., F.R.S., now make an appeal for new members. They have an excellent case, seeing that the gardens are visited by about 80,000 persons each year, and, that in addition to fulfilling other purposes, the gardens form an ideal place for important horticultural exhibitions held in this part of the Midlands. The gardens supply specimens for the use of botanical students in the University, and members of the society have access to a first-class library maintained in the gardens. The treasurer is Mr. FRED M. LEA, and letters may be addressed to the Botanical Gardens.

LECTURE ON TREES.—Dr. AUGUSTINE HENRY will deliver a lecture on "The Study of Trees," on the 17th instant, at 8 p.m., in the Carpenter's Hall, London Wall. Attention will be drawn to the importance of the study of varieties, species and hybrids of the common forest trees. Dr. HENRY will relate the results of investigations he has made in sowing numerous kinds of Elm. The Black Italian Poplar appears to be a vigorous first-cross between the English and American species of Black Poplar. The Cricket-Bat Willow appears also to be in the category of first-crosses. Whether vigorous first-crosses may be produced in other trees by artificial means is an interesting question. Dr. HENRY will also deal with Birches, Oaks and other trees.

A LADY ALPINIST.—Miss L. S. GIBBS, who has recently contributed articles to these pages on New Zealand trees, is reported to have climbed successfully Kinabalu, in British North Borneo. This is believed to be the first ascent of the mountain by a woman. Its height is 13,700 feet. Miss GIBBS's first expedition was to South Africa in 1905, when she accompanied the British Association on their visit to Rhodesia. Next visiting Fiji, she returned with material for a work on the flora of those islands and New Zealand.

PUBLICATIONS RECEIVED.—*Missouri Botanical Garden* (twentieth annual report), St. Louis, Mo., U.S.A. (Published by the Board of Trustees.)—University of California publications: *The Report of the Plant Pathologist and Superintendent of Southern California Stations*, July 1, 1906, to June 30, 1909, by Ralph E. Smith. (Berkeley: The University Press.)—*Annual Report on the Gardens of His Highness the Maharana Sir Fateh Singhji Bahadur, G.C.S.I.*, of Udaipur, Mewar, for the year 1908-9. (Ajmer: Scottish Mission Industries Co.)—*Roots*, by H. A. Stanhope. (London: Agricultural and Horticultural Association.) Price 1d.

COLONIAL NOTE.**EUCALYPTUS CORDATA.**

In reply to Mr. Bartlett's statement in the *Gardeners' Chronicle*, December 18, 1909, p. 422, that it is hard to procure seed of *Eucalyptus cordata*, I may say it is a common species on the higher mountains of southern Tasmania, and the seedsmen of Hobart can supply seed in any quantity likely to be demanded in Europe.

As regards Mr. Bartlett's reference to *E. amygdalina* being the hardiest of the Eucalypti, that species grows in Australian localities of medium coldness. In calling plants amygdalina I would, however, like to caution readers that certain species and varieties formerly deemed to belong to amygdalina have, during recent years, been proved not to belong to that species.

In further reference to Mr. Bartlett's letter, no species of *Eucalyptus* is in any part of Australia ever known as Myrtle, but some other species of Myrtaceæ, such, for instance, as *Eugenia* and *Backhousia*, are sometimes called Myrtles. *J. H. Maiden, Botanic Gardens, Sydney.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FREESIA ARMSTRONGII.—*Freesia rubella*, published in the *Bulletin Boiss. Herb.*, series 2, vol. i., page 868, 1902, by me, appears to be the same species as *Freesia Armstrongii* described by Mr. Watson and figured by Mr. Moon in *The Garden* for May 25, 1901. My plant has reddish flowers, but the rachis is not at all refracted, as is the case in the plant described by Mr. Watson. *Freesia rubella* was collected by Junod at Delagoa Bay, and the specimens are at Zurich in the herbarium of Professor Schinz. There is a specimen of a pink-flowered *Freesia* in the Kew Herbarium, collected in 1814 by Dr. Burchell in the province of George, South Africa, on the ridge between Lang Valley and Zwart Valley, and another specimen collected at Mossel Bay in 1862 by the Rev. W. Moyle Rogers. *J. Gilbert Baker, 3, Cumberland Road, Kew.*

PRUNING OF YOUNG VINES (see p. 51).—I should like to add my testimony to what Mr. Molyneux has written in regard to the vines which he planted at Swanmore Park. I have seen the vines from time to time, and, as "the proof of the pudding is in the eating," Mr. Molyneux's methods are justified. Last August I visited the gardens at Longford Castle, and there saw some of the finest Grapes I have ever seen, both in bunch and berry, growing on young vines. *W. H. Y., Rotherfield Park Gardens, Alton.*

—With reference to the weights of the three bunches each of Buckland Sweet Water (12½ lbs.), Gros Colman (13½ lbs.), and Gros Guillaume (30 lbs.), Mr. Molyneux says (p. 140): "I cannot gather if these bunches were cut from one vine or not," adding, "Mr. Ward is not clear on that point, but I assume they were, and, if so, they were extraordinary bunches from vines so young." I thought I had made myself quite clear on that point (see p. 87). Yes, the "three bunches" of the Grapes named were certainly cut from three individual vines, and not from six or nine vines. All Grape experts who saw the bunches on the vines in the autumn of that year (1885) thought, like Mr. Molyneux, that they were extraordinary bunches for such young vines to produce, and that the length, thickness, and vigour of the vines were remarkable for vines less than three years old. I repeat, the vines in question continued to yield satisfactory crops of Grapes—prize-winning bunches at the Crystal Palace and leading provincial shows—up to the autumn of 1896 (inclusive), and I have no doubt whatever in my mind that they would have continued to yield satisfactory crops up to the present time if the cultural treatment had remained the same. Now, Mr. Molyneux says: "It will be news to Mr. Ward to learn that his successor at Longford pulled out the vines and replanted almost the whole of the vineries because, he states, the vines were past their

best." I did hear that my immediate successor at Longford had uprooted the vines in one "mixed" house to make room for Fig trees. What I objected to (p. 89), and object to still, in the method of pruning advocated by Mr. Molyneux (see pp. 51-52) is the waste of time, labour, and house space, and the consequent loss of crop, which the following of such method of procedure would necessarily incur. I have no doubt whatever about Mr. Molyneux's vines at Swanmore being everything that he says they are, and that they are likely to give satisfactory results for another 30 years, the cultural conditions being equally favourable. But, supposing Mr. Molyneux had severed his connection altogether with Swanmore after his vines had been in full bearing for 10 or more years, and he was succeeded by a man who considered that the said vines were "past their best," and consequently pulled them out and planted young vines in their place, would Mr. Molyneux consider the fact proof that the said vines were "past their best"? I think not. I repeat that I strenuously condemn a method of pruning young vines being advocated for the guidance of amateur Grape-growers, which, by following it, would take nine or ten years to furnish an ordinary-sized vinery with fruit-bearing wood. In the *Gardeners' Chronicle* for January 29, p. 69, Mr. William Taylor, of Bath, an excellent Grape-grower, says: "I thought the practice of growing a vine to a length of 14 feet merely to cut down was abandoned long ago," adding, "I could point to vines which, I understand, are still in the best possible condition after fruiting heavily for 35 years or more, which were never cut down at all." What has Mr. Molyneux to say to this? At p. 52, Mr. Molyneux says that he "cuts back the 14 feet length of rod (the second year's growth from the eye) to within a few inches of the first wire, and allows this short length of cane to bear 'one bunch' of Grapes, since by 'over-cropping the first year, the growth becomes crippled and never regains the vigour necessary to last in good condition 30 years,'" adding, "Were the vines intended to last but a few years (as is the case in market nurseries), it would not matter if they were allowed to carry half-a-dozen bunches the first year." Quite so. The large growers of Grapes for market, like the Messrs. Rochfords and others, adopt the method of procedure which pays best. They take all that a vine is capable of producing in as short a time as possible, and then root out the vines and plant young ones. Where there are two or more vineries, this practice might be adopted with advantage in private gardens, in most of which the value of "pounds, shillings, and pence" has to be considered, and results are looked for by the owners. I hope that the numerous amateur readers of the *Gardeners' Chronicle* will derive benefit from the views exchanged by Mr. Molyneux and myself in this widely-read journal. Both practices are sound, but with a difference. By following that advocated by the writer, you will obtain the anxiously-looked-for results within two or three years from the time of planting, while, following the other method of procedure, you will have to wait a few years longer. That is all. *H. W. Ward.*

ROOTS OF FRUIT TREES.—I have read with very deep interest the article on *The Roots of Fruit Trees*, by Mr. C. Bogue Luffmann, in your issue of January 29 last. The writing is very condensed, and on that account is not quite easy to follow. I (and others here) would be grateful to Mr. Luffmann if he would kindly state the grounds for some of his propositions. The discussion as to tap-roots does not particularly concern us, as the fruit trees here do not occasion us any trouble on that account. What we more particularly should like to have indicated are the experiments, or, rather, the observations upon which the writer has based the proposition that it is "the autumn growth of roots" which "elaborates" buds. I understand this statement to mean that the roots which the tree forms in the autumn tend to produce fruit buds for the following season. It would also be interesting to have Mr. Luffmann trace out the connection between this view of the function of autumn-formed roots and summer pruning (i.e., pinching), and what effect his deductions concerning that connection has in determining the proper time at which summer pruning ought to be done. *J. T. Boddy, Nelson, Port of Callum, author of "Fruit Branching in the Callum Garden."*

AQUILEGIA ALPINA.—In the note in last week's issue on the *Botanical Magazine*, it is stated that Mr. D. Hill got his original plant of *Aquilegia alpina* (tab. 8303) from the Pleine Madeline, near Chandelon, in Valais, at about 5,000 feet. Probably this is meant for Chandolin, above St. Luc, in Val d'Anniviers, 6,493 feet above the sea, one of the highest, permanently-inhabited villages in the Alps. The district is very rich botanically, comprising this particular plant among others less striking. According to Mr. Coolidge, whose knowledge of Alpine matters and statistics is unique, "the highest, permanently-inhabited village in the Alps, as well as in Switzerland, is Juf (6,998 feet) in the Avers Valley (Grisons), not very far from the Maloja Pass." The *Botanical Magazine* states that the colour of the flowers is "a rich shade of blue-violet." Although plants supplied by nurserymen, as *A. alpina*, are sometimes of this colour, a clear, bright blue is the true colour, as all who have seen this very beautiful and rather rare plant in its native haunts know full well. *A. pyrenaica* has blossoms of a slightly more violet shade, while those of *A. Reuteri* of the Maritime Alps, Liguria, Dauphiné and Piedmont are just the same clear blue as *A. alpina*. The Department of Savoy may be added to the countries mentioned in *Botanical Magazine*, where *A. alpina* is native. *H. S. Thompson.*

CHRISTMAS ROSES IN MARCH.—I do not remember to have seen the various forms of *Helleborus niger* in such good flower so late in the season as they are at the present time. Near me, as I write, is a vase of excellent blooms of *H. n. angustifolius*, which is frequently good in this district up to the middle of February. The late flowering is not this year confined to this variety, however, for such as *H. n. major*, *H. n. scoticus*, and the usually November-flowering *H. n. altifolius* have all been in good condition. Curiously enough, the variety *altifolius* gave no flowers at all at its usual time. At Christmas time, when the flowering of *H. n. major* is sometimes regarded as a certainty, not a flower-bud appeared. That these are not isolated instances may be gathered from the fact that Messrs. Barr & Sons have shown good flowers at each of the February meetings of the Royal Horticultural Society, including all the varieties I have named. *E. H. Jenkins, March 5.*

DESSERT APPLES AND COLTSFOOT.—It is always more easy to criticise the writing of others than to write something original oneself, but nevertheless criticisms are sometimes useful. I was struck in reading Mr. Wythes' notes on late dessert Apples to find that he had omitted the best flavoured perhaps of any. I mean Lord Hindlip. With us this is quite the best late table Apple. King of Tomkins is very good on our clay and not a bad cropper; Lord Burghley is a very old and good variety, but alas! a sad subject to canker. On p. 152 it states that "Thistles, Buttercups, and Coltsfoot usually occur on good land." Surely there must be a mistake here. I never saw Coltsfoot growing in anything but poverty. I once saw it lifting the asphalted platform at Mattock Bridge Station and growing through the cracks which it had made, whilst the navvies had hard work to break up the same asphalt with pickaxes; this, however, is another story. I have farmed land where it was plentiful, and have proved that one or two good dressings of farmyard dung will invariably cause it to disappear, so that I am sure one must not take it as a weed which denotes good land. The way to rid a pasture of Buttercups is to keep geese upon it: they will dig up the roots and save the farmer any further trouble. *A. H. Pearson, Loddham.*

THE POMPON-CACTUS DAHLIA: A NEW NAME.—It appears to me a pity that the diminutive form of the Cactus Dahlia should be called Pompon-Cactus. The term Pom-Pom, apart from being applied in a measure to something small, brings to my mind an object small, round and formal. Judging from the perfect flowers shown last autumn, this impression is a wrong one, and I suggest that the small Cactus strain be rechristened Rosette Dahlias. This name would, doubtless, do much to make the section more popular, as, after all, there is a good deal in a name, especially during the infancy of a new flower. *Harry Stredwick.*

WEATHER NOTES FROM LEONARDSLEE GARDENS, SUSSEX.—The rainfall here for February was 4.47 inches, and the total for the year up to date 7.80, against 1.80 inch for the same period in 1909. There has been less frost in consequence, and trees have had a good soaking with water, such as they have not experienced for several years. *Rhododendron præcox* is charming this season, being now in perfection. In clumps of 10 or 12 plants it is magnificent. *W. A. Cook.*

SALVIA SEMIATRATA.—This plant, comparatively little known, is not suitable for winter flowering, but is nevertheless a valuable species for the sub-tropical garden. From cuttings rooted in September, plants can be grown for planting on a sunny border in May, where they will form fine, shrubby plants, densely covered with beautiful dark-blue flowers, which last well into the autumn. It is a species that is generally much admired where grown for summer flowering. *G. Ferrington, Cloverley Gardens, Salop.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 8, 9.—The exhibition on Tuesday and Wednesday last may be said to represent the "high water mark" of these fortnightly meetings in the Society's Hall. Not another foot of space was available for exhibitors, and, as regards the number of visitors, locomotion was next to impossible in the early afternoon of the first day. Although special prizes were offered for bulbs, the exhibition was of a general and varied character, and included fine groups of Orchids, forced shrubs, Carnations, Clematis, Lilacs, Roses, Camellias, *Rhododendrons*, and hardy plants. The meeting was chiefly floral, for no exhibit, beyond a display of Kales, was staged in the fruit and vegetable section. A Gold Medal was conferred by the FLORAL COMMITTEE for a group of Alpine and hardy plants from Sir E. Hambro's garden, the like of which we have rarely seen. Four Awards of Merit to novelties were also conferred by this Committee. The ORCHID COMMITTEE, as usual, had many fine groups to inspect, and granted several awards to new varieties, including one First-class Certificate and four Awards of Merit. The NARCISSUS COMMITTEE met for the first time this season. At the 3 o'clock meeting in the lecture-room, a paper on "Plant Hygiene" was given by Mr. F. J. Baker, A.R.C.S.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. Chas. T. Druery, E. Bowles, Jno. Green, R. C. Notcutt, W. J. Bean, G. Reuthe, George Gordon, Jas. Douglas, W. Howe, J. W. Barr, J. F. McLeod, Chas. Blick, R. Hooper Pearson, W. Barr, Chas. Dixon, H. J. Jones, Herbert J. Cutbush, A. Turner, Chas. E. Pearson, W. P. Thompson, J. T. Bennett-Poë, Chas. E. Shea, E. H. Jenkins, W. J. James, Geo. Paul, F. Page Roberts, R. C. Reg. Nevill, W. B. Cranfield, and C. R. Fielder.

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, again contributed a fine display of greenhouse flowering plants in a wealth of colours, and admirably staged for effect. None was prettier than the starry-flowered *Crowea angustifolia*, the blooms being developed on narrow, arching shoots. Near by was *Camellia reticulata*, with its gorgeous blooms of rosy-red colour and elegant foliage. *Coleus thyrsoides* attracted attention, with its deep-blue spikes, and a batch of *Primula* × *kewensis*, with the bright yellow blossoms, gave another distinct shade. At the back, *Streptosolon Jamesonii* bore a wealth of rich, orange-coloured trusses, intermingled with densely-flowered Azaleas, *Rhododendrons* of the *Javanico-Jasminiflorum* type; *Cinerarias*, *Lachenalias*, *Boronias*, and many other greenhouse plants were equally beautiful. On the opposite table to this display, Messrs. VEITCH arranged about 100 plants of *Hyacinths*, in great variety, and with exceptionally large trusses of blooms. Another fine display was made by this firm in a group of forced Lilac plants in pots. These also were splendidly in flower, the varieties being *Marie Legraye* (white), *Virginalis*

(white), *Souvenir de Louis Spath* (lilac), *Mme. Casimir Perier* (double white blooms), *Mme. Lemoine* and *Gloire de Lorraine* (pale lilac). (Silver-gilt Flora Medal.)

One of the most imposing displays in the Hall was a batch of forced flowering shrubs and trees, disposed around a group of Indian Azaleas, these latter being magnificent specimens. The exhibitor was Mr. L. R. RUSSELL, nurseryman, Richmond. The Azaleas were so good generally, it is difficult to particularise, but we specially admired *Empereur du Bresil* (white and pink), *Hélène Thelmann* (a lovely shade of light rose pink), *Van der Cruysson* (deep rose pink), *Empress of India* (a semi-double variety), *Mons. Ernest Eckhaute* (rose-red crinkled petals), and *amœna hortensis*, this last-named plant being one mass of blooms. (Silver-gilt Flora Medal.)

Messrs. PAUL & SON, Cheshunt, staged a group of forced Lilacs, interspersed with standard plants of *Genista canariensis* and tall *Pelargoniums* of the *Clorinda* variety. (Silver Flora Medal.)

Mr. C. ENGLEMAN, Saffron Walden, Essex, contributed a choice display of Carnations, the dark crimson-coloured *Carola* being prominent in epergnes in vases. The magenta-coloured *Vinca* is of a rather uncommon shade in these flowers. (Silver Flora Medal.)

Mr. H. BURNETT, Guernsey, was also an exhibitor of Carnations. The blooms were of the highest quality, and the largest in the exhibition. We have never seen the variety *R. F. Felton* exhibited so finely. The variety named after Mrs. R. F. Raphael is cherry-red in colour, and exceptionally large. Mrs. Tatton, which received an Award of Merit on the previous meeting, and *Bay State*, a good Fancy, the white petals splashed with red, were also noticed. Mrs. W. B. Clode is the finest-scented of all the tree Carnations. (Silver Flora Medal.)

Mr. W. H. PAGE, Tangley Nursery, Hampton, set up an imposing exhibit of Carnations and Liliums, interspersed with banks of large trumpet Daffodils. Very large bunches of the freest-flowered and best-coloured varieties of Carnations formed the chief feature of the exhibit, the Liliums being used as a background. In the centre of the display was a seedling *Pelargonium* named *Winter Cheer*, the flowers of which are exceptionally large, many measuring 3 inches across. The colour is a scarlet rose. (Silver Flora Medal.)

Messrs. WILLIAM PAUL & SON, Waltham Cross, Herts., showed Camellias as cut flowers. They were grouped in batches of distinct varieties, many of them being choice kinds of recent origin. *Alba simplex* is a delightful single, and *The Swan* is also a pretty white single, and quite new. Other good varieties were *Dr. Balthazar de Mallo*, white, flaked with crimson; *Boadicea*, delicate rose, one of the newer kinds; *Marchioness of Exeter*, one of the best rose varieties; *Ninfa del Tebro*, white; *Adelina Patti*, pink, edged with white; and *Kotopé*, single white. (Bronze Flora Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, exhibited a bright group of Carnations, which included several of the firm's novelties, and most of the standard sorts. Amongst the newer sorts we noticed a large crimson seedling, something like *Carola*; also *Royal Purple*, *Regal Mauve*, and *Helen M. Gould*, a parti-coloured flower, the petals being splashed with pink and red. Amongst the better-known sorts were choice blooms of *Winsor*, *White Perfection*, *Rose Doré*, and *Rose Enchantress*. Adjoining the Carnations, Messrs. STUART LOW & CO. showed greenhouse-flowering plants, including *Ericas* in variety, *Crowea angustifolia*, *Boronias*, the red-dish-orange-flowered *Chorizema*, *India Azaleas*, several *Acacias*, including *A. cordata*, *A. diffusa*, and *Genista fragrans*. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, showed batches of *Clematis* arranged in a groundwork of decorative Ferns, and here and there a few brilliant Azaleas and standard plants of *Pelargonium Clorinda*. The *Clematis* were *Lady Londesborough* (lavender), *Mrs. Quilter* (white), *Nellie Moser* (soft lavender, with a broad, rose-coloured stripe), and *Miss Bateman* (white). At one end of the group was a batch of *Polypodium cambricum*, of the best types, including very fine specimens of *Prestonii* and *Barrowii*. (Silver Banksian Medal.)

Messrs. W. CUTBUSH & SON, Highgate, Middlesex, put up an exhibit of Carnations, having

vases, some tall and some short, furnished with the best varieties in cultivation. Lady Millar, the perpetual-blooming "Malmaison," of flesh-pink colour, was well shown, also Rose Doré, Beacon, and Superior, a new variety, of cerise shade, and of medium size. Messrs. CUTBUSH also showed a rockwork exhibit, backed with flowering shrubs and planted with bulbous Irises, Saxifragas, Tulips, and other flowers. (Silver-gilt Banksian Medal.)

A pretty feature at this meeting consisted of a lawn and terrace, with a background of Cupressus, and borders of spring-flowering plants and bulbs, arranged by Messrs. JAS. CARTER & Co., High Holborn. The back part was reached by a flight of steps which had, on either side, a border of bright flowers, such as Crocuses, Tulips, Hyacinths, Primroses, and Snowdrops. This border was continued toward the front at either end. Half-circular bays on the terrace were planted with Daffodils and Hyacinths, which showed up well against the Conifers, and in the centre a stream of water from a fountain dropped into a stone basin. (Silver Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed 45 varieties of Cacti and other succulents, with an edging of Echeveria farinosa. Many of them were grafted on more robust species; thus Opuntia ursinus had been worked on a tall stem of O. monacantha, and Cereus flagelliformis on another species of Cereus. They were a very clean and healthy set of plants.

Messrs. CARTER, PAGE & Co., 52, London Wall, London, had an attractive exhibit of bulbous flowers grown in bowls and vases, with fibre as the rooting medium. The plants were remarkably well flowered, some of the best being:—Hyacinths: Gertrude (pink), Grand Maitre (blue), Moreno (pink), Potgieter (porcelain blue). Tulips: Keizerskroon, Joost van Vondel. Narcissus: Victoria.

Messrs. SUTTON & SONS, Reading, showed batches of Hyacinths in two colours each, the shades being selected for their harmony. There were about a dozen selections, one of the finest combinations being pale blue and cream. Others especially pleasing represented shades of apricot and cream, flesh colour and salmon-pink, pale yellow and dark blue (a fine contrast), and pink and pale blue. There were also associations of apricot and rich red, pale pink and white, white and dark blue. The display was relieved with Adiantum Ferns. (Silver-gilt Banksian Medal.)

Messrs. R. GILL & SONS, Tremough, Penryn, Cornwall, again showed trusses of Rhododendron from plants in the open. Many of them were seedlings of R. arboreum, some being new varieties, never before exhibited. Of these the best were Riviera Beauty, a compact truss of rosy-cerise-coloured blooms; Florence Gill, pale pink, edged with deeper pink; and Meteor, a bright-red variety. We also noticed Wm. Shilson, with big blooms of soft pink colour, and the beautiful R. Hodgsonii. In addition to the Rhododendrons there were some exceptionally large Violets of the Princess of Wales variety, and two large plants of Primula imperialis. (Bronze Flora Medal.)

Messrs. C. BROOKS & SON, nurserymen, Basingstoke, showed a great variety of blooms of Primula sinensis. They were arranged on white paper, and although the particular method of exhibiting is to be deprecated, the flowers were very fine. A white variety, labelled Queen Alexandra, was especially good, the large, waved blooms being 2 inches in diameter. True Blue is quite the finest in that shade, although Royal Blue is also good. Ruby Queen attracted our attention; while Giant Pink and Giant Salmon both have fine substance and large size, as well as clear, distinct tones. Crimson King, Orange King, Rubra, and Novelty (noticed in our issue for February 26, p. 141) are others shown by this firm.

Some well-flowered crowns of Lily-of-the-Valley were shown by Mr. W. PROFITLICH, Twickenham.

Messrs. BAKERS, LTD., Wolverhampton, showed Alpines, including Saxifragas of the oppositifolia section; large groups of Primula denticulata and allied forms, Viola gracilis, and other plants.

An exhibit of Roses was made by Messrs. GEO. MOUNT & SONS, Canterbury, the most conspicuous feature being the new variety Lady Hillingdon, which received an Award of Merit. (Bronze Flora Medal.)

HARDY PLANTS.

Hardy plants generally, and Alpine and bulbous plants in particular, were numerous displayed. One of these exhibits constituted a feature of the show, being notable alike for the choice plants it contained, the excellence of their culture and attractive method of displaying them. The exhibitor was Sir EVERARD HAMBRÖ, K.C.V.O., Hayes Place, Hayes, Kent (gr. Mr. J. Grandfield), and he was awarded a Gold Medal. The Primula family was in strong force, such attractive species as P. marginata, P. Forbesii, P. denticulata, P. cashmeriana alba, P. frondosa, P. floribunda and others being arranged in well-flowered batches here and there. Both the Saxifragas and Androsaces were also well represented. The Saxifragas included large, well-flowered examples of some of the rarest and choicest in cultivation, evoking the admiration of all. For example, a pan of S. Boydii, 8 inches across, was covered with the pale lemon-yellow flowers, while S. B. alba, pure white; S. marginata, S. scardica obtusa, S. Burseriana, S. B. macrantha, all white-flowered forms, provided a welcome display of blossoms. Other notable members of this genus included fine non-flowering rosettes of S.

Coniferous subjects was also instructive. (Silver-gilt Banksian Medal.)

Messrs. J. CHEAL & SONS, Crawley, also arranged a small rock-garden exhibit in excellent taste. Messrs. J. PEED & SONS, West Norwood, S.E., brought a quantity of Alpines and miniature examples of succulent plants in boxes.

Some well-grown examples of early Alpine and other plants were shown by Messrs. HEATH & SONS, Cheltenham, the Hepaticas constituted the pretty feature amid a number of other interesting things. Messrs. BEES, LTD., Liverpool, staged a well-flowered group of Primula malacoides. The Misses HOPKINS, Shepperton, were responsible for a group in which Primroses and Saxifragas were well represented.

Messrs. T. S. WARE, LTD., Feltham, had a bank-like arrangement furnished with Alpine plants, a large number of which, like Saxifraga Burseriana, S. scardica, and S. apiculata afforded delightful masses of colour. (Bronze Flora Medal.) Messrs. G. & A. CLARK, LTD., Dover, and the GUILDFORD HARDY PLANT NURSERY each brought interesting exhibits of Alpine and other hardy flowers. The collection from Messrs. BARR & SONS, Covent Garden, occupied a long



[Photograph by W. J. Townsend.]

FIG. 73.—FRITILLARIA IMPERIALIS VAR. CHITRALENSIS: FLOWERS RICH YELLOW.

(See "Awards of Merit.")

longifolia and S. florulenta, while such yellow-flowered sorts as S. Elizabethæ and S. Kotschy were also in the collection. Shortia uniflora grandiflora was much admired, its white pink-tinged flowers above the crimsoned leafage being very beautiful. Muscaria, Chionodoxas, Squills, and other bulbous-flowering plants were pleasingly interspersed throughout the group, which had for a background a few examples of forced shrubs and other plants. As a display of hardy plants, in which choice Alpines predominated, it is the finest we have seen.

Mr. G. REUTHE, Keston, Kent, had a pretty and interesting group of early-flowering Alpines in conjunction with choice Rhododendrons of many kinds, only a few of which, however, were in flower. (Silver Flora Medal.)

Messrs. R. WALLACE & Co., Colchester, showed a pleasing and most naturally-arranged piece of rockwork built up with well-weathered sandstone blocks. It was planted with choice things such as Saxifraga Boydii, Androsace Laggeri, delightful colonies of Cyclamen Coum in variety, and the lovely form of Primula viscosa known as Mrs. J. H. Wilson. The method of planting afforded useful and suggestive hints to the visitor. The disposition of dwarf shrubs and

table, and was largely made up of Lenten Roses in variety, Lachenalias, Crocuses, both species and bedding varieties, together with a collection of forced Narcissi. (Silver Banksian Medal.)

AWARDS.

AWARDS OF MERIT.

Fritillaria imperialis var. *chitralensis* (see fig. 73).—At the meeting held on February 22 last, some cut flowers were shown of a beautiful yellow Fritillaria, but the variety was not known to the committee. It was resolved to send the flowers to Kew for identification, and, subject to the variety being given a name, it was further resolved to recommend the next committee meeting to bestow an Award of Merit. At the meeting on March 8, it was reported from Kew that the flowers belong to *F. imperialis*, being the Chitral form of that species. In Chitral, this particular variety is said to be as common as Daisies in this country. The variety is apparently new to cultivation here, and it is to be called *chitralensis*. Miss WATSON, North Court, Finchampstead, Hampshire, who exhibited the flowers on February 22, informs us that the bulbs were sent home by Col. H. D. Watson, C.I.E., when he was with his regiment, the 2nd King's

Own Goorkhas, in Chitral. They were grown at North Court by Miss WATSON'S gardener, Mr. A. Langridge.

Rose Lady Hillingdon.—This is an excellent Tea Rose for forcing, producing long, filbert-shaped buds of rich apricot-yellow. The petals are very fine in shape and size, but the flowers are not over full. The foliage is large, smooth, and such as the decorator appreciates. The variety is said to be the result of a cross between Mme. Hoste and Papa Gontier. Shown by Messrs. GEO. MOUNT & SON.

Saxifraga scardica obtusa.—This is a pretty little plant with white flowers similar to those of *S. scardica*, but having smaller, rather obtuse leaves. Shown by Sir EVERARD HAMBRO, K.C.V.O.

Shortia uniflora grandiflora.—This plant is a large-flowered variety of *S. uniflora*, a gem of the Alpine garden (see figs. 97 and 98 in *Gardeners' Chronicle*, April 4, 1908). The blooms of the novelty are 1½ inch across. Shown by Sir EVERARD HAMBRO, Hayes Place.

CULTURAL COMMENDATION.

Saxifraga Boydii.—A Cultural Commendation was awarded to Sir EVERARD HAMBRO, K.C.V.O. (gr. Mr. J. Grandfield), for a pot of this charming yellow-flowered *Saxifraga*—probably the best specimen ever exhibited.

Narcissus Committee.

Present: H. B. May, Esq. (in the Chair); Rev. Joseph Jacobs, Rev. G. H. Engleheart, Messrs. R. Sydenham, P. R. Barr, Alexander M. Wilson, E. M. Crosfield, G. W. Leak, Christopher Bourne, W. Poupert, Walter T. Ware, and C. H. Curtis (secretary).

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, showed a group of about 60 varieties of Narcissi. The blooms were of high quality throughout, and representative of choice sorts. Two new kinds were seen in Coreen, a very regularly-shaped bloom of the "flat-eye" type, the broad ring being pale orange; and Southern Star, having a cup of deep-orange colour. Amongst older varieties we noticed King Alfred, Gold Finch (extra fine flowers), White Lady, Orangeman, Sunset, Victoria, Ariadne and Wear-dale Perfection. (Silver-gilt Banksian Medal.)

Messrs. R. & G. CUTHBERT, Southgate, showed a splendid group of Tulips in pots, both flowers and foliage being remarkably well developed. The following varieties represent a selection:—Golden Sion of Hellegom (yellow, with crimson-tipped edges), Prince of Austria (red-orange-scarlet), Rose Grisdelin (rose, flushed with white), Queen of the Netherlands (white, shaded rose), White Swan (a pure white flower of good substance), Pink Beauty (pink, veined with white), Proserpine, Magnificent (pink), Vermilion (scarlet), Mr. Stanley (bright pink), Flamingo (pink, edged and traced with white), Van der Neer (purplish-violet), Le Remarquable (purple, edged with white), Sir Thomas Lipton (scarlet), and Grace Darling (deep red). (Silver-gilt Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed forced Daffodils of choice kinds, such as Peter Barr, Lord Roberts (the bold trumpet of rich yellow showing well against the paler perianth), Duchess of Normandy (both trumpet and perianth being white, the segments twisted), Argent (one of the best of the double-trumpet kinds, the bloom being a mixture of yellow and white), Blackwell (a lovely incomparabilis flower, the cup being rich orange), Victoria (a yellow-trumpet Daffodil with pale segments), Alice Knights (both trumpet and perianth, white), and Hamlet (in which the same parts are wholly yellow). (Silver Flora Medal.)

Messrs. ROBERT SYDENHAM, LTD., Tenby Street, Birmingham, had a selection of forced Daffodils, and bulbs grown in fancy bowls, planted in Moss fibre. The Narcissi included some exquisite Jonquils of the double Campenelle type; very good also were Persian Orange, White Lady, Lucifer, Tomtit, Homespun, and Victoria. The group included some large-flowered Freesias, Lily-of-the-Valley, Hyacinths, and Horse Chestnut seedlings, grown in fancy bowls for decorative purposes. (Silver Banksian Medal.)

Messrs. J. R. PEARSON & SONS, Chilwell Nurseries, Lowdham, Nottinghamshire, had a selection of Narcissi, of such kinds as Sulphurus plenus, Sir Watkin, Argent, Seagull, Chaucer, Blackwell, Emperor, Poeticus ornatus, Duke of

Bedford (a fine trumpet Daffodil), and Katherine Spurrell.

Messrs. R. & H. BATH, LTD., Wisbech, showed Narcissi, Tulips, Hyacinths, Crocuses, and other bulbs grown in ornamental vases filled with fibre, a system that produces excellent results, judging by the magnificent flowers. (Silver Banksian Medal.)

BULB COMPETITION.

Twelve classes, with money prizes and medals, were provided with a view to demonstrating the best varieties of bulbs suited for gentle forcing. The money prizes were offered by the General Bulb Growers' Society, Haarlem. The classes were divided for amateurs and traders. In addition, Messrs. Robert Sydenham, Ltd., offered prizes in three classes for bulbs grown in Moss fibre, or similar material, without provision for drainage, and Messrs. Robert P. Ker & Sons offered prizes in a class for 12 pots of Hippeastrum (Amaryllis).

The Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett) won the 1st prize for 12 Hyacinths in pots with well-finished, massive spikes. The best were Jaques, King of the Blues, Captain Boyton, Queen of Riches, Kohinoor, and Rose à Merveille. 2nd, The Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), with also a fine collection, the best being Rose à Merveille, La Grandesse, Lord Derby, Vurbank, and La Victoire. 3rd, T. VON HEYDER, Esq. Allerton, Liverpool (gr. Mr. A. Lewis).

There were nine competitors in a class for 12 Hyacinths in pots. The Marquis of SALISBURY, Hatfield, Herts (gr. Mr. H. Prime) was awarded the 1st prize: he had some excellent spikes, a few being less good. The best were La Victoire, City of Haarlem, King of the Blues, Ivanhoe, and Mr. Plimsoll. The 2nd prize was awarded to A. EARLE, Esq., Wavertree, Liverpool (gr. Mr. Hitchman), who had several excellent spikes. 3rd, C. WATNEY, Esq., Garston, Herts (gr. Mr. G. Dyke).

There was only one collection of six Hyacinths. These came from the gardens of A. HANSON, Esq., Victoria Park, Wavertree (gr. Mr. Bushell). The 1st prize was awarded.

The keenest competition and finest spikes probably were seen in the class for four broad pans, each containing 10 bulbs. In this case the Hon. VICARY GIBBS was again 1st, having superb spikes of La Victoire (red), King of the Blues, La Grandesse (white), and City of Haarlem (primrose). The Duke of PORTLAND, in this case, was a very close 2nd, having in his four pans very good King of the Blues, City of Haarlem, Moreno (pink), and La Grandesse. The Marquis of SALISBURY was 3rd, having Ivanhoe (deep blue), Jaques (pink) La Victoire and La Innocence (white).

TRADE CLASSES.

The first of these was for 200 Hyacinths in pots. The only competitors were Messrs. R. & G. CUTHBERT, of Southgate. Their fine collection was well set up in a carpet of Ferns and Mosses. In this case 36 varieties had to be included. Here again Captain Boyton, Jaques, King Menelik (dark blue), La Grandesse, City of Haarlem, and Schotel (pale blue) gave the best spikes.

In the class for 200 plants in 20 pans, 10 in a pan, the same firm were again the only exhibitors, and the finest spikes were chiefly those varieties already named. A Gold Medal was awarded in each case.

BULBS GROWN IN MOSS FIBRE.

There were five collections in the class for six single Hyacinths in vases not to exceed six inches in diameter, and to be of certain named varieties. The 1st prize was won by Lady TATE, Streatham (gr. Mr. W. Howe), the spikes being of medium size. Miss C. A. MICHELL, Cricklewood, was placed 2nd, and Mrs. DARDIER, Ealing, 3rd.

For six vases of Tulips, the vases not to exceed 7 inches in diameter, Lady TATE was again 1st with Rose Grisdelin, Kaisers Kroon, Prince of Austria, Duchess of Parma, and others. 2nd, Mrs. DARDIER. 3rd, Mrs. H. GORDON THOMPSON, Potters Bar.

Lady TATE also won the 1st prize for six Narcissi clumps in 7-inch vases. The varieties included White Lady, Emperor, Horace, Beauty, Leonie, and Frank Miles. 2nd, Mrs. GUY BARING; 3rd, Miss MICHELL.

HIPPEASTRUMS.

In this class there was only one group. The plants were of exceptional quality, some of the flowers, especially the crimson and reds, being superb. This was staged by J. A. KENRICK, Esq., Edgbaston, Birmingham (gr. Mr. A. Cryer), and well merited the 1st prize awarded.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Talbot Clifton, Harry J. Veitch, de B. Crawshaw, H. Little, W. Boxall, R. G. Thwaites, F. Sander, F. M. Ogilvie, Clive Cookson, A. A. McBean, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, A. Dye, W. H. White, H. A. Tracy, H. Ballantine, Gurney Wilson, W. Cobb, W. Bolton, Stuart Low, C. J. Lucas, and Sir Jeremiah Colman, Bart.

Baron Sir H. SCHRÖDER, The Dell, Egham (gr. Mr. H. Ballantine), was awarded a Silver Flora Medal for a group of the beautiful Calanthe Baron Schröder, which is one of the finest hybrid Calanthes and a very strong grower, the stout spikes being about 5 feet in height and bearing numerous flowers with white or bluish sepals and petals. Most of the varieties had a deep violet-purple base to the lip, some forms varying the tint to rose colour.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), staged a selection of Burford hybrid Dendrobiums, including forms of *D. Wiganatum* (*Wiganie* × *signatum*), the variety aureum being pale sulphur-yellow with purple disc; *D. Ainsworthianum* (*Ainsworthii* × *signatum*); 3rd *D. Melpomene*; the rare *D. superbum* Huttonii; *Sophro-Laelio-Cattleya Bletchleyflora* (*L.-C. Bletchleyensis* × *S. grandiflora*), with a fine reddish-scarlet flower; and the pretty *Epicattleya Nebo*.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), staged an interesting group, in which were two plants of *Dendrobium Smilliae*, with racemes of white flowers with dark-green fronts to the labellums; some yellow hybrid Dendrobiums; *Bulbophyllum sicyobulbon*, with many spikes of yellow flowers; *Cirrhopetalum Mastersianum*; *Pholidota gracile*, with sprays of small white flowers; a fine *Odontoglossum Wilckeanum*, with 17 flowers; *Cœlogyne yunnanensis*; and the very interesting *Dia-Laelio-Cattleya Gatton Rose* (*D. bicornutum* × *L.-C. Cappei*), of the habit of *Diacrium bicornutum*, but with solid, not hollow, pseudo-bulbs. The inflorescence bore six or seven flowers, one being fully expanded; white, tinged with lilac.

H. S. GOODSON, Esq., West Hill, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for a select group containing two handsome *Odontoglossums*, viz., *O. illustre*, with two spikes of purplish-violet flowers with white margins and tips, and *O. crispum Memoria Battle of Waterloo*, a finely-spotted flower, figured in the *Gardeners' Chronicle*, January 11, 1908, p. 18. Others noted were *Laelio-Cattleya luminosa*, with two spikes; and the rich scarlet *Odontodia Bradshawiae* Goodson's variety.

J. GURNEY FOWLER, Esq., Gleadlands, South Woodford (gr. Mr. J. Davis), showed the beautiful *Odontoglossum Wyonianum* illustrated in the *Gardeners' Chronicle*, April 3, 1909, p. 211, a prettily-marked white flower; *O. ardentissimum* Empress of India, a very finely-blotched flower of perfect shape; *O. Wilckeanum* Miss Louisa Fowler, a large and distinct flower; and *O. crispum Winnie*, a good blotched form.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a group in which two of the best things were *Brasso-Cattleya Digbyano-Mendeli* the Hon. J. Lowther, a very large flower, but not fully expanded, bluish-white with lemon-yellow disc to the fringed lip; and the new *Odontoglossum Cravenianum*. The group was also remarkable for the number of *Odontodias*, which exceeded any yet shown, their varied tints of scarlet and red being very effective. Among those noted were *O. Charlesworthii* (still one of the best), *O. Vuylstekeae*, *O. Craveniana*, *O. Goodsoniae*, *O. heatonensis*, and *O. Keighleyensis*. Among *Odontoglossums*, the fine *O. ardentissimum* Xanthos Charlesworthii, the new *O. Ceres*, and some other fine hybrids were noted, together with the bright-blue *Disa lacera multifida* (certificated last meeting), *Brassia brachiata*, *Vanda cœrulescens*, the charming *Laelio-Cattleya Bella alba* and other *Laelio-Cattleyas*.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an extensive group, in the centre of which were selected forms of *Odontoglossums*, and varieties of *Miltonia Bleuana*; M. B. Gold Crest being remarkable in having a distinct reddish gold mark at the base of the lip. There were three specimens of *Pleurothallis Roelzii*, with many racemes of dark claret-coloured flowers; a very fine form of *Sophræolælia-Cattleya Danae*; several deep-red *Renanthera Imschootiana*; various *Dendrobiums*; a pan of *D. velutinum*, bearing many yellow flowers; *Cymbidium Schröderianum*, and other *Cymbidiums*; some good *Cattleya Schröderæ*; a selection of hybrid *Odontoglossums*, including *O. Rossianæ* (*Rossii* × *Adrianæ*), a very interesting cross not yet developed.

Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander), showed *Cattleya Empress Frederick superba* (*Mossii* × *Dowiana aurea*), a very fine flower, with broad petals of a delicate rose tint, the fine lip being veined with gold, as in *C. Mossii aurantiaca*; *Cattleya choensis alba* Westfield var., a fine white flower with prettily-marked lip; *Dendrobium Radiance*, being a *D. melanodiscus* cross of great beauty; and the very finely-coloured *Lælio-Cattleya Goldfinch* Westonbirt variety. (See Awards.)

Messrs. JAS. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a group rich in *Dendrobiums*, including varieties of *D. nobile* and hybrids. *Cattleya Trianae* The Gem was a fine flower, with purple front to one lip; the forms of *Lycaste Skinneri* were good; *Cypripediums* included varieties of *C. aureum*, one bearing five flowers, and others noted were *Cymbidium eburneum*, *Cœlogyne cristata* Lemoniana, some showy *Masdevallias*, including *Heathii*, *igneo-Estradæ*, and *tovarensis*, *Cattleya Suzanne Hye* de Crom, and a good selection of hybrid *Calanthes*.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Banksian Medal for a varied group, in which were noted a large specimen of *Dendrobium fimbriatum oculatum*, a remarkably good strain of *D. Wardianum*, *D. linguaeforme*, a very dark *Cymbidium Lowgrinum*, and the beautiful *C. Holfordianum*; *Bulbophyllum comosum*, *Pleurothallis scapha*, good *Cattleya Schröderæ*, *Odontoglossum blandum*, the new and singularly coloured *Odontodia Seymouri* (*C. vulcanica* × *O. Uro-Skinneri*), *Ipsea speciosa*, and some pretty *Masdevallias*.

Mr. A. W. JENSEN, Lindfield, Haywards Heath, was awarded a Silver Banksian Medal for a group of excellent varieties of *Cattleya Schröderæ*, including a white form, and a large-flowered variety tinged and veined with rosy-lilac. The group also included a good *C. Mendelii* and some forms of *Odontoglossum crispum*.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Banksian Medal for an effective group, in the centre of which were six finely-flowered *Cymbidium insigne* (Sanderi), around them being good forms of *Cattleya Schröderæ*, one having the ruby-purple lip as in Pitt's variety. Others noted were three *Brassia-Cattleya Digbyano-Schröderæ*; a superb form of *Lycaste Skinneri alba*, a fine specimen of *Dendrobium pallens*, *Stanhoea eburnea*, and *Dendrobium Wiganianæ xanthochilum*.

Mr. C. KIRCH, 60, Uplands Road, Hornsey, showed a pretty form of *Brassia-Cattleya Digbyano-Schröderæ alba*.

Mons. MAURICE MERTENS, Ghent, showed a selection of hybrid *Odontoglossums*, &c.

R. G. THWAITES, Esq., Chessington, Church Road, Streatham (gr. Mr. J. M. Black), sent *Odontoglossum Blackii* (*Rossii* × *Pescatorei*), an interesting hybrid. The individual flowers at present closely resemble *O. Rossii*, but the lip shows the pandurata form of *O. Pescatorei*, and the elongated slender inflorescence is also indicative of that species. Mr. THWAITES also showed some interesting *Dendrobium* crosses, one being *D. Wiganianæ* × *D. Wiganianæ xanthochilum*, a wax-like, white flower.

G. HANBURY, Esq., Blythwood, Burnham, Bucks. (gr. Mr. Branson), sent a very fine specimen of *Cymbidium eburneo-Lowianum*. C. J. LUCAS, Esq., sent *Phaius maculatus*; Messrs. STANLEY & Co., Southgate, staged a small group, including *Cattleya Trianae splendens*, a fine form; *Odontoglossum Lambeaunum*, and several *Masdevallias*.

MESSRS. HEATH & SONS, Cheltenham, staged a group of *Cypripediums*, in which were several of the distinct *C. Oriole* (*villosum giganteum* × *nitens* variety) of good shape, with Indian-yellow

ground colour, having numerous dark spots; *C. Swinburnei magnificum* and *C. Mons. de Curte* Swinburne's variety, both good.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed a very large form of *Cattleya Trianae*.

E. ROGERSON, Esq., Oakdene, West Didsbury, Manchester (gr. Mr. W. C. Price), sent *Odontoglossum Lily Wilkinson*, white, finely blotched with rose-purple, and *Cypripedium Boadicea* Schofield's variety, of good shape.

G. P. WALKER, Esq., Heatherwood, Putney Heath, sent the fragrant little *Dendrobium Hedyosmum*.

Mrs. COOKSON, Oakwood, Wylam (gr. Mr. Chapman), sent *Odontoglossum percultum Clive*, a distinct flower, with a yellowish ground colour closely barred with claret colour; *Cypripedium Chapmanianæ aureum* (*Fairrianum* × *Calypso*), with a yellowish base to the dorsal sepal which has purple lines running into the white upper half, the ground colour of the rest of the flower being yellow tinged with purple; and *C. hirsutolecanum*, which retains distinct traces of *C. hirsutissimum*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Phaio-Calanthe Baron Schröder (*P. Wallichii* × *C. Baron Schröder*), from Baron Sir H. SCHRÖDER (gr. Mr. Ballantine). The finest of the *Phaio-Calanthes*. The plant bore two spikes of showy flowers. The sepals and petals are cream-white, tinged with rose-purple at the base. The lip is large, deep, and of reddish-claret colour.

AWARDS OF MERIT.

Lælio-Cattleya Goldfinch Westonbirt variety (*L. C. Warrhamensis* × *C. Dowiana aurea*), from Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander). A most beautiful flower of rich colour. The sepals are of old gold colour freckled with rose, and the petals orange, tinged with rose; the lip is deep ruby-red with very fine gold lines at the base.

Epi-Cattleya Nebo (*Epidendrum O'Brienianum* × *Cattleya Claessana*), from Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White). A pretty hybrid, with the growth of *E. O'Brienianum*, but shorter and with more broadly-ovate leaves. The flowers are produced in a terminal head; they are reddish-rose, with white, fringed lip.

Odontoglossum Cravenianum (*cirrhum* × *ramosissimum*), from Messrs. CHARLESWORTH & Co. An elegant hybrid, the flowers of which bear some resemblance to an enlarged *O. nævium majus*. The flatly-displayed segments are snow-white, spotted with purple.

Cymbidium Lowgrinum Rosslyn variety (*Lowianum* × *tipicum* × *Lowianum Pitt's* variety), from H. T. PITT, Esq., (gr. Mr. Thurgood). A very distinct and handsome form, with reddish sepals and petals; the white lip being blotched with purple in front.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair); also Messrs. P. D. Tuckett, A. Dean, W. Pope, J. Davis, W. Bates, G. Hobday, J. Gibson, H. Parr, G. Reynolds, O. Thomas, G. Wythes, C. G. A. Nix, H. Somers Rivers, E. Beckett, P. C. Veitch, A. R. Allan, and W. Poupart.

Mr. WRIGHT brought tubers of a huge purple Potato, much like those of Blue Giant, which had been sent to Wisley for trial. They ranged in weight from 1½ lb. to 2 lbs., and in the bulk were 25 lbs.

Messrs. SUTTON & SONS, Reading, sent a very interesting collection of hardy Kales, all of ordinary field culture. Not the least evidence of wintry weather was visible on any of them. The tall, green-curved section was represented by Suttons' Al, a fine, sturdy stock; Improved Hearting, a superb, solid-headed Kale, the stems studded with sprouts; and by Hardy Sprouting, a variety which seems to come between the tall Scotch and a Green selection from the Cottager's Kale—a wonderful stem sprouter. The Dwarf Green and purple Arctic Kales were excellent samples. Specially pretty was a group of the ornamental or variegated Kales. The new broad-leaved hybrid Asparagus, Sutton Favourite, and others formed a very pleasing as well as useful group. (Silver Banksian Medal.)

NATIONAL DAHLIA.

CONFERENCE ON DAHLIAS.

MARCH 4.—A Dahlia Conference was held by the Society, on this date, in the Charles Dickens Room, at Carr's Restaurant, Strand. About 60 members and friends were present. The chair was taken by the President, Mr. Edward Mawley, V.M.H. The following papers were read:—“Dahlias in Garden Decorations,” by Mr. George Gordon, V.M.H.; “Growing Dahlias for Exhibition,” by Mr. James Stredwick; and “Methods of Exhibiting Dahlias,” by Mr. J. B. Riding.

DAHLIAS IN GARDEN DECORATIONS.

The following are extracts from Mr. Gordon's paper:—

“Before we can make any real advance in the endeavour to place the Dahlia in the position it should occupy among the many plants available for beautifying the flower garden during the summer months, we must break away from traditional methods, and make very considerable changes in our views with regard to the methods of procedure by which the best interest of the flower can be served. We must, first of all, recognise the fact that all the Dahlias in cultivation are not, for some reason or other, suitable for garden decoration. Hence, I regard it as of immense importance that we, as a society, should give increased attention to garden varieties.

“Not until the past year or two have awards been made to varieties specially shown for their usefulness in the garden . . . with the result, in the case of the Cactus varieties, that comparatively few are of any considerable service otherwise than for exhibition.

“The garden varieties should be in full bloom early in August.

“We cannot, it need hardly be said, do anything to extend the season by protecting the plants at the end; but we can do much to lengthen it by commencing sufficiently early to have strong plants for bedding out at the end of May. It matters not whether the stock be raised by means of cuttings or division of the tubers, they should be well established in large 60's by the middle of April at the latest, and be then shifted into 6-inch pots, and a compost consisting of turfy loam and well-rotted manure used. If the stock is purchased, the plants should be obtained at the period mentioned above, and, after a day or two's rest, be shifted into larger pots, precisely as advised for those home raised. Subsequent to the repotting, they should be placed in a frame, where they can be near the glass, have protection from frost, and enjoy a free circulation of air in fine weather. Plants so raised will grow away vigorously, and come into bloom far in advance of those kept in 60's until bedded out.

“With regard to soil preparation, it cannot be too distinctly stated that the heavy dressings of fat manure that are so frequently recommended for beds and borders are both unnecessary and undesirable. The soil should be deeply dug, and a moderate dressing of manure applied; but more liberal enrichment will promote the production of soft growths and hinder the production of flowers.”

GROWING DAHLIAS FOR EXHIBITION.

Mr. Stredwick said:—“The best plan is to procure good, strong, healthy plants about the end of April or the first week in May. If the pots are well filled with roots, the plants should be at once repotted into, say, 5 or 6-inch pots, according to their size and condition. After repotting, great care must be taken not to over-water the plants, or they will soon become sickly. They should be placed in an ordinary garden frame, provided with a little heat by night, and kept fairly close and shaded for two or three days. When they are established in the new soil, the more fresh air they are allowed by day during warm weather the better; but on cold days care must be taken that ventilation is given without risk of causing a check to the plants. By night the frame should be closed; but as the weather becomes more genial, the frame should be gradually left open at night-time, and finally removed altogether. In some cases a second shift is required, if the season for planting-out is a late one, but over-potting must be avoided.

“The ground for Dahlia planting should be dug deeply, 18 inches deep if possible, and the rougher the better, in the late autumn, allowing

it to lie exposed in winter weather; but then, early in March, if possible, put on a good dressing of stable manure, and dig it in deeply. The soil should be turned again about three times before planting out the first week in June.

"The soil having been properly prepared and the plants ready, planting may be proceeded with. Stretch a line in the direction of your first row of plants, and about 2 feet from the edge of the pathway, put in a small stump, and then repeat this at distances of 4 feet apart. These will be the positions for the plants to occupy. Around the points so marked, dig holes about 15 inches in diameter, and a good spit deep: fill the holes half full of fairly rotted stable manure, with about as much soot as a 60 pot will hold, and the same quantity of well-slaked but fresh lime. Next widen the diameter of the hole by digging in and thoroughly mixing the surrounding soil with the manure. Fill in with the soil originally excavated, and press it all down evenly. The first row being now ready, the others may be prepared in the same way, leaving 5 feet at least between the rows. The actual planting should be done with a trowel, replacing the soil firmly.

"Dahlias at the time of planting should be about 1 foot high, and should be at once secured to strong stakes, not less than 4 or 5 feet out of the ground. The plants will soon begin to show signs of growth and, most likely, flower-buds. The latter, if exhibition flowers are required, must be at once pinched out, and, if the plants be of sufficient height, pinched back to one or two joints below. All the energies of the plant will thus be thrown into the bottom growths, which will soon require to be looped up to the stake to protect them from damage by the wind. It is now advisable to insert two more stakes, the three forming a triangle around the plant. Around the stakes put some stout yarn, to which, when of sufficient length, the branches may be tied evenly all round inside the enclosure. In the case of bushy plants, thin out the weakest branches, leaving about six on each plant.

"It is more than likely that the first buds, after the treatment before mentioned, will be too early for the shows, except in late districts; and if it is desired that the plants should have all the vigour possible at the most important time, take out the leading bud of each shoot, bearing in mind this most important fact that, from the time this tiny bud is formed, a month must elapse before it can develop into a perfect flower. As soon as it has been decided to let the plants bloom, shorten all the side shoots, above three or four joints, and remove the flower-buds, except the centre ones, leaving the lower laterals to produce future blooms. As the season advances, the lower shoots generally bear the finest flowers.

"As the plants begin to bear a good number of blooms, they will require feeding. It is an excellent plan to get, say, a 40-gallon cask, and put into it a bag containing well-rotted stable manure, keeping the cask filled with water, and never watering direct from a main water supply or pump.

"Mulching is an important matter. It is a great advantage in dry weather; but whether it is of value in all climates is open to question, because it prevents the sun's rays from penetrating the soil. Our practice is to mulch in dry seasons, as soon as the three stakes are put in, placing a layer of rough stable manure over the ground to a depth of about 2 inches.

"Shading the blooms is of great importance. In very bad weather perfect flowers cannot be obtained without some protection, but it must not be forgotten that the blooms must always be tied firmly, so that they are in the centre of the shade, and not too close to it. It is necessary that a current of air can pass through, otherwise the shade will do more harm than good when the sun is very hot. As to the shading, we make the shades of fine canvas or calico; the shape is conical, about 12 inches in height, and the same in diameter at the base."

METHODS OF EXHIBITING DAHLIAS.

Mr. Riding said that "at the first Dahlia Show held in St. James's Hall, September 23 and 24, 1858, only Show and Fancy varieties were exhibited; but, what is still more surprising, the exhibitors of to-day and the framers of schedules, the N.D.S. included, have not deviated in their methods of exhibiting since the year 1858; there are still the long lines of Show and

Fancy blooms at exhibitions, and staged in similar boxes of the same dimensions.

"The present method of exhibiting Show and Fancy Dahlias is a relic of Early Victorian times, and appeals to no one in these days except, perhaps, a few keen exhibitors, and I feel sure they would welcome a change too. Small wonder that the general public take such little interest in this section, for who, except a Dahlia fancier, can see any beauty in rows of coloured drumheads, for as such they must be regarded by all flower lovers?

"Naturally, I am asked, What would you exhibit in? I reply, equally naturally, in vases. Now I know perfectly well the objections that will be raised; the first, that it would be impossible to judge them under such conditions. Are not Chrysanthemums and Roses staged in vases? Yes, and judged too; so there is an end to this objection. Then, again, the exhibitor will urge that it is impossible to exhibit 48 varieties in one class; and I say to this, a good thing too.

"Twelve varieties, of five or six blooms of each, arranged in vases, would be more effective and pleasing. Objection No. 3 would also come from exhibitors, viz., the difficulty of carrying their blooms on long stems to the shows. This is a genuine objection; but it is one of those difficulties that have to be overcome, and while other flowers are taken to shows with long stems, there is no reason why the double Dahlia should not be treated likewise. Other objections are:—The time taken in staging and the cost of the vases. But I think I have said enough to convince you that it is time we had a different method of staging the Show varieties.

"The popular Pompon varieties are shown in wires shaped like a gridiron. Often, the amateur, with 10 blooms, and 10 only of one variety, has, with much patience and care, effectually secured No. 9; but No. 10 refuses to take the wire properly, and it suffers from a broken neck. The only justification for using such unnatural appliances is that the work of making up can be done at home, and, consequently, takes up little time on the day of the show.

"I need hardly point out the usual method of staging, for you know the flowers are exhibited in wire frames in threes. For my part I should banish every wire frame from a show, simply and solely because they are so unnatural, and because I am convinced the flowers can be staged without them. In fact, you will remember we have already classes where the flowers are staged in vases without wiring or facing, and they are such an object-lesson that I trust the time will come when this type of exhibiting will be the only one seen at our shows.

"The trade exhibitors of Dahlias, who utilise Bamboos, vases, &c., with an appropriate setting of foliage, grasses, Ferns, and plants, produce a far finer effect than the competitive classes, and it is upon these lines that we should proceed.

"The naming and labelling of the flowers leave much to be desired. I have been present at the majority of exhibitions held in London for the past 20 years, and I say that the method of labelling and the slipshod fashion in which it is carried out is only excelled by one other national society. This should be altered."

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 9.

The fifth warm week in succession.—This was another warm week: in fact, since February 2, there has not been a single unseasonable cold day, and but nine cold nights. On the warmest day of the past week the temperature in the thermometer screen rose to 56°—the highest reading as yet of the present year. There was only one cold night, and even then the minimum temperature was only slightly below the average. The ground is at the present time 1° warmer at 3 feet deep, and 4° warmer at 1 foot deep, than is seasonable. Slight falls of rain have taken place on each of the last four days, but the total quantity only amounted to about a tenth of an inch. Small quantities of rainwater have come through both percolation gauges during the week. The sun shone on an average for 4½ hours a day, or for 1½ hours a day longer than is usual at this period in March. On three successive days the sun was shining brightly for over eight hours a day, whereas on three others the record was less than an hour a day. The wind has been variable in strength, but light airs and calms have as a rule prevailed. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 2 per cent. A selected patch of *Chionodoxa luciliae* growing in my garden came first into flower on the 4th, which is four days earlier than its average date for the previous 23 years, and 15 days earlier than last year. E. M., Berkhamsted, March 9, 1910.

Obituary.

DR. EDWARD PERCIVAL WRIGHT.—The death of Dr. Wright, which took place in Trinity College, Dublin, at the age of 76, removes yet another link with the past. Dr. Wright held the professorship of Botany in Dublin University from 1869 till the time of his resignation in 1904. Not only by reason of his scientific attainments, but also by his zeal as a reformer, will Dr. Wright be long remembered. As all concerned with Trinity College, Dublin, must know, the constitution of that powerful and venerable institution is ludicrously antiquated. To bring this constitution into conformity with intelligent modern ideas, Dr. Wright—in common with other professors—devoted much of his time and energies. It is understood that Dr. Wright's library will find a place in the fine, new Botanical Laboratory which is under the charge of Professor Dickson, who succeeded Dr. Wright in 1904.

MRS. FORD.—I deeply regret to have to report the death of Mrs. Ford, at Pencarrow, in her 95th year. Mrs. Ford was the youngest daughter of Sir A. Ourry Molesworth, Bart. She inherited the famous estate of Pencarrow about 20 years ago on the death of the widow of her elder brother, Sir William Molesworth. The deceased lady was a niece of the celebrated Miss Caroline Molesworth, whose *Cobham Papers* were deservedly well known to the last generation. Close associations with this lady undoubtedly fostered the great love of plant life which was early instilled into Mrs. Ford's mind by her brother William, who transformed Pencarrow from a huge deer-park, with numerous pits devoted to cock fighting, into one of the most interesting gardens in the country. Following closely upon the lead of Baron Grenville at Dropmore, and Sir Charles Lemon at Falmouth, Sir William Molesworth laid out an extensive pinetum at Pencarrow. He personally assisted in the actual planting of the greater number of the young trees, and "Dot" (the late Mrs. Ford), as he affectionately called his youngest sister, then a child of seven years, always accompanied him. Sir William, besides being a Cabinet Minister, the foremost authority on colonial policy, and a profound mathematician, was also a skilled botanist. Under his tuition, Mrs. Ford developed a critical knowledge of plants, and more especially of Conifers. Throughout her ownership of Pencarrow, it was Mrs. Ford's aim to develop the grounds on the lines of the plan originally made. Besides the Pencarrow property, Mrs. Ford owned an extensive estate at Tetcott, in North Devon. In the Pencarrow libraries there are many books of horticultural interest, such as a complete edition of Loudon's works, Evelyn's *Sylva*, Lambert's *Genus Pinus*, with life-sized coloured illustrations, the monumental Bateman's *Orchidaceae of Mexico and Guatemala*, also with full-sized coloured representations, of which only 125 copies were printed; Lindley's *Sertum Orchidacearum*, many bound volumes of Curtis's *Botanical Magazine*, Paxton's *Magazine of Botany*; Bauer's *Genera of Ferns*, &c. Despite her advanced age, Mrs. Ford displayed the keenest interest in the affairs of the day. She was fully aware of the difficulties attendant on gardening in this variable climate, and she was not slow to bestow praise when the results warranted it. I have not only lost an appreciative and considerate employer, but one whose many kindly acts endeared her to those who served her. Mrs. Ford died on March 4. By her express desire no flowers were placed on her coffin, but merely a cross formed of the most favoured species amongst the Conifers she so much loved. A. C. Bartlett.

MRS. E. GIBBS.—We regret to record the death, on February 28, of Mrs. Gibbs, wife of Mr. E. Gibbs, gardener and steward to Miss A. de Rothschild, Eythrope, Aylesbury. The deceased lady, who was 57 years of age, had been in failing health for some time.

MARKETS.

COVENT GARDEN, March 9.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Acacia dealbata (mimosas), per doz. bunches...	8 0-10 0
Anemones, p. doz.	1 0-1 6
Azalea, Ghent, per bunch...	0 6-0 9
— Fieldier, p. dz.	3 0-5 0
Bouvardia...	6 0-8 0
Calla (see Richardia)	
Carnations, p. doz. blooms, best	
— American (var.)	2 0-3 0
Carola, and other special varieties	5 0-6 0
— second size	1 6-2 0
— smaller, per doz. bunches	12 0-18 0
Camellias, per doz.	1 0-2 0
Cattleyas, per doz. blooms	6 0-9 0
Daffodils, best, per doz. bunches...	2 0-4 0
— seconds	1 6-2 0
— double, per doz. bunches	2 0-4 0
Eucharis grandiflora, per dozen blooms	3 0-4 0
Freemias, p. dz. bch.	1 6-2 0
Gardenias, per dz.	1 6-2 6
Heather (white), per bunch	0 4-0 6
Hyacinths, Roman, per doz. bchs.	6 0-9 0
Lapageria alba, per dozen blooms	1 6-2 0
Lilac (French), p. bch.	3 0-4 0
Lilium auratum, per bunch	2 0-3 0
— longiflorum	2 0-4 0
— lancifolium rubrum	2 0-2 6
Lilium lancifolium album	1 6-2 0
Lily of the Valley, p. dz. bunches	6 0-9 0
— extra quality	12 0 15 0
Marguerites, p. dz. bunches white and yellow	2 0-3 0
Mignonette, per dozen bunches	3 0-4 0
Narcissus poeticus (Pheasant's Eye), per doz. bchs.	1 0-2 0
— Soleil d'Or	1 0-1 6
Odonotoglossum crispum, per dozen blooms	1 0-2 0
Pelargoniums, shw., per doz. bchs.	4 0-6 0
— Zonal, double scarlet...	4 0-6 0
Richardia africana (Calla), p. doz.	1 6-2 6
Roses, 12 blooms, Niphetos	2 6-3 0
— Bridesmaid	3 0-4 0
— C. Testout	4 0 6 0
— Kaiserin A.	3 0 5 0
— Victoria	2 0-4 0
— C. Mermet	2 0-4 0
— Liberty	5 0-9 0
— Mine Chateau	6 0 8 0
— Richmond	4 0 6 0
— The Bride	4 0 6 0
Spiraea, p. dz. bchs.	2 0-4 0
Stocks, p. dz. bchs.	3 0-4 0
Sweet Peas, per dozen bunches	3 0 6 0
Tuberose, per doz. blooms	4 0-5 0
Violets, p. dz. bchs.	1 6-2 0
— Parma	1 6-2 6

Cut Foliage, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Adiantum cuneatum, per dozen bunches	6 0-8 0
Asparagus plumosus, long trails, per doz.	12 0-18 0
— medium, doz. bunches	12 0-18 0
— Sprenger	0 9-1 6
Berberis, per dozen bunches	2 6 3 0
Croton leaves, per bunch	9 0-12 0
Cycas leaves, each	1 0 2 0
Ferns, per dozen bunches (English)	2 0-3 0
Ferns (French)	0 6-0 9
Galax leaves, per doz. bunches	1 6-2 0
Hardy foliage (various), per dozen bunches	3 0-9 0
— Ivy leaves, bronze	2 0-2 6
— long trails per bundle	0 9-1 6
— short green, per dz. bunches	1 6-2 6
— loss, per gross	4 0-5 0
— Lythe, dz. bchs. (English)	
— small-leaved	4 0 6 0
— French	1 0-1 6
— mix, p. dz. trails	6 0 8 0

Plants in Pots, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Acacia Drummondii, per dozen	24 0-30 0
Ampelopsis Veitchii, per dozen	6 0-8 0
Aralia Sieboldii, p. dozen	5 0-8 0
— larger specimens	9 0-12 0
— Moseri	6 0-8 0
— larger plants	12 0-18 0
Araucaria excelsa, per dozen	12 0-30 0
— large plants, each	3 6-5 0
Aspidistras, p. dz., green	15 0-24 0
— variegated	30 0-42 0
Asparagus plumosus nanus, per dozen	9 0-15 0
— Sprenger	9 0-12 0
— tenuissimus	9 0-12 0
Azaleas, per doz.	30 0-42 0
Begonia Gloire de Lorraine, p. dozen	12 0-18 0
Boronia heterophylla, per dz.	24 0-30 0
— megastigma	18 0-24 0
Cinerarias, per doz.	5 0-8 0
Clematis, per doz.	8 0-9 0
Cocos Weddelliana, per dozen	18 0-30 0
Crotons, per dozen	18 0-30 0
Cyclamen, per doz.	8 0-12 0
Cyperus alternifolius, dozen	4 0-5 0
— laxus, per doz.	4 0-5 0
Daffodils, per doz.	4 0-6 0
Dracenas, per doz.	9 0-24 0
Erica gracilis, doz.	10 0-15 0
— hyemalis	9 0-15 0
— melanthra	9 0 18 0
— persoluta alba	24 0-30 0
Ericas, small plants (various)	3 0-5 0
Euonymus, per dz., in pots	3 0-8 0
— from the ground	3 0 6 0
Ferns, in thumb, per 100	8 0-12 0
— in small and large 60's	12 0-20 0
— in 48's, per dozen	4 0-6 0
— choicer sorts	8 0-12 0
— in 32's, per dozen	10 0-18 0
Ficus elastica, per dozen	9 0-12 0
— repens, per dz.	6 0-8 0
Genistas, per dz.	6 0-9 0
Grevilleas, per dz.	4 0-6 0
Hyacinths, per dz. pots, 3 in a pot	6 0-9 0
Isoplexis, per dozen	4 0-6 0
Kentia Belmoreana, per dozen	18 0-24 0
— Fosteriana, per dozen	18 0-30 0
Latania borbonica, per dozen	15 0-21 0
Lilium longiflorum, per dz.	24 0 36 0
— lancifolium, p. dozen	18 0 30 0
Lily of the Valley, per dozen	18 0-30 0
Marguerites, white, per dozen	6 0-9 0
Mignonette, per dozen	6 0-8 0
Selaginella, p. doz.	4 0-6 0
Spiraea japonica, per dozen	9 0-12 0
Tulips in boxes of 24 bulbs	1 6-2 0
— pots, special	9 0-12 0

Fruit: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Apples Newtown (U.S.), per barrel	28 0-52 0
— (Nova Scotian), per barrel	
— Starks	16 0-18 0
— Baldwin	16 0 17 0
— Greening	14 0-18 0
— Russett	17 0-22 0
— Fallawater	18 0-20 0
— Ben Davis	15 0 17 0
— (English), per bushel	
— Annie Elizabeth	5 6-6 6
— Allington Pippin	4 6-6 0
— Newton Wonder	5 0-7 0
— Bramley's Seedling	5 0-7 0
— Newtown Pippin, per case	
— Oregon	11 0-13 0
— Caltonian	8 0-9 0
— French Russets	8 0-10 0
— British Columbia	12 0-18 0
Bananas, bunch:	
— Doubles	10 0 —
— No. 1	8 0-10 0
— Extra	8 0-10 0
— Giant	9 0-11 0
— Red coloured	4 6-6 0
— Red Doubles	8 0-9 0
— Jamaica	5 0-5 6
— Loose, per dz.	0 6-1 0
Cranberries, per case	7 0-7 6
Custard Apples, p. dozen	6 0-12 0
Grape Fruit, case 18 0-15 0	
Grapes, per lb:	
— (Cape) black, per case, large	10 0 —
— "small	5 0-6 0
— Gros Colmar	2 0-3 0
— A quality	2 0-3 0
— B quality	1 0-1 6
— Alicante, A quality	1 6-2 6
— B quality	1 3-1 9
— Gros Colmar (Belgian)	1 6-2 0
— (Almeria), per barrel	14 0-20 0
— p. 12 lb. baskets	5 0-8 0
Lemons, box:	
— Palermo, 800	9 0 11 0
— "36	9 0 10 6
— selected, case	12 0-14 0
Limes, per case	2 6-3 0
Lychées, per box	1 6-1 9

Vegetables: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Artichokes (Globe), per dozen	1 6-1 9
— Jersey, per dozen	1 6-1 9
Asparagus, Paris Green, bundle	5 0-6 0
— Spruce, bundle	1 0-1 3
— Laiviro, bundle	8 0-10 0
Beans (English and Chan. Islands), per lb.	1 3-1 6
— Broad (French), per bag	5 6-6 6
— (Madeira), per basket (6 to 8 lbs.)	2 6-3 6
Beetroot, per bushel	1 6-2 0
Cabbages, p. tally	2 6 —
Cardoons (French), per dozen	8 0-10 0
Carrots (English), dozen bunches	2 9 3 0
— per bag	3 6 4 0
— unwashed	1 6-1 9
Cauliflowers, tally (French), per crate (24-30)	3 6-4 6
Celeriac, per doz.	1 6-2 6
Chicory, per lb.	0 2-0 3
Cucumbers, p. doz.	4 0-6 0
Endive, per dozen	2 0-2 3
Horseradish, foreign, new, per bundle	1 0-1 3
— 12 bundles	12 0-15 0
Leeks, 12 bundles	1 0-1 6
Lettuce (French), per dozen	1 8-2 0
Marrows (Madeira), per doz.	12 0-18 0
Mushrooms, per lb.	0 9-0 10
— broilers	0 6 —
Mustard and Cress, per dozen punnets	1 0 —
Onions (Dutch), p. bag	3 0 3 6
— English bag	4 6-5 0
— per chuk, chuk	7 0-8 0
— Spring, per dz. bunches	3 0-4 0
— (Valencia), per case	9 0-10 0
Parsley, 1/2 sieve	1 6 3 6
Parsnips, per bag	1 6-2 0
Peas (French), per pad	3 0-5 0
Potatoes (Channel Islands), per lb.	0 4 0 4 1/2
— (Teneriffe), per cwt.	10 0 15 0
Rhubarb (forced), doz. bundles	0 10-1 0
Radishes (French), per doz. bunches	1 3-1 6
— (Guernsey), dz.	0 9-0 10
Savoy, per tally	4 0-7 0
Seakale, per dozen punnets	10 0-12 0
Spinach, 1/2 sieve	2 6 3 0
— (French), crate	3 6 4 0
Sprouts, 1/2 sieve	1 0-1 3
— per bag, 28 lbs.	1 3-2 6
Sprouting Broccoli, bag	1 3-1 9
Stachys tuberosa, per lb.	0 4-0 5
Tomatoes	
— (Teneriffe), per bundle	8 0 16 0
Turnips, 12 bchs.	2 0-3 0
— bags	2 0 2 6
— dirty, per bag	1 6-2 0
Turnip Tops, bag	1 0 2 0
— Watercress, p. flat	4 0-6 6

REMARKS.—A consignment of Claret, or West Indian Red Bananas, arrived on Tuesday in good condition, and sold readily. Good samples of the Apple Plum from the Cape sold for as much as 12s. 6d. per case of 35 fruits: these were the finest fruits that had been seen this season. Ripe Cape Pears of the Williams' Bon Chrétien variety have been scarce notwithstanding large arrivals, the majority being hard and quite green. Cape Grapes also are a plentiful supply, but the demand is poor. Good Canary Bananas are still a short supply. English and Channel Island Beans are 1s. 6d., being top value. Peaches from the Cape are a short supply, especially those of the Royal George variety, the best market Peach grown. Cases each containing 28 fruits have realised as much as 1s. per case.

Canary Tomatoes are a little cheaper: their quality generally is exceptionally good. Nova Scotia and Californian and Oregon Newtown Pippin Apples are dearer. English forced Rhubarb has risen in price, supplies from Yorkshire being shorter. Palermo Blood, Messina, and Bitter Oranges are scarcer. Shipments of French Cauliflowers have been much smaller, the prices realised not being sufficient to pay the growers. Oranges continue to sell freely, especially selected varieties. There is a plentiful supply of home-grown vegetables. Trade generally in both fruit and vegetables is quiet. E. H. R., Covent Garden, Wednesday, March 9, 1910.

Potatoes.

per cwt.	s.d. s.d.	per cwt.	s.d. s.d.
Bedfords—		Lincolns—	
Up-to-Date	8 0-3 6	Up-to-Date	3 6 4 0
Blacklands	2 3-2 9	Dalmey Beauty	3 6 3 9
Dunbars—		Royal Kidney	2 6 2 9
Maincrop	5 6-5 9	Maincrop	3 3-4 0
Up-to-Date	4 3-4 6	King Edwards	3 0 3 3
Lincolns—		Kents	
Evergood	2 6-2 9	Scottish Triumphs	3 6 4 0
Sharpe's Express	8 0-3 3	Up-to-Date	3 6-4 0

REMARKS.—Business is still very dull, and unless the tubers are of best samples they are difficult to sell; as a consequence the stocks in London are increasing. Edward J. Newborn, Covent Garden and St. Pancras, March 9, 1910.

COVENT GARDEN FLOWER MARKET.

Trade is brightening up a little, after one of the worst seasons experienced in the market. Those who receive produce to sell on commission find it difficult to make satisfactory returns. In cut flowers prices vary from day to day, but it is not so with pot plants, except on rare occasions. The large supplies from foreign sources make a great difference in the cut-flower trade. At the time of the floods in France railway traffic was dislocated and prices advanced a little, enabling English growers to clear their stocks well.

CUT FLOWERS.

The supplies of Daffodils from the Channel Islands and from the Scilly Islands are enormous: still, the English-grown are the best. English-grown Emperors cut ten days ago are still looking fresh, while those from other sources only lasted a few days. Varieties vary, and I find that Victoria is the best market bicolor: some confuse Princeps, which is very thin, with Princess, which is a much better variety. Horsfieldii does not come in so early, but it is a good, standard variety. The English-grown flowers of Golden Spur are remarkably fine. There are several varieties of Narcissus poeticus that are good. Ornatus is the name generally given: by some in the market they are known as Pheasant's (or Pea) Eye. It takes some time to get acquainted with the market names of various flowers and plants: in many cases the salesmen do not know their correct name. I find there are still some who only know Gardenias as Capes or Cape Jasmine). Eucharis are more plentiful. Lilium longiflorum is not abundant, but prices have not advanced. English-grown Violets are cheap. Princess of Wales appears to be the favourite variety. No English growers cultivate the Parmas so well as they are grown in France. Tulips are still over plentiful, but being of better quality, their prices have advanced a little. The double yellows and double pink varieties are worth most money. Roses have fallen considerably in prices; some very fine blooms of Caroline Testout are seen. Carnations are abundant, and we do not often see such fine blooms early in March.

POT PLANTS.

In flowering plants the most recent additions are Acacia Drummondii and Boronia megastigma and B. heterophylla. Ericas are plentiful in various sorts. E. persoluta alba still fetches a good price, making 30s. per dozen. Azaleas are remarkably good. Genistas have improved with the increase of sunshine. Cinerarias are at their best. We are getting better Primulas this season, but there is not much demand for them. Hyacinths, Tulips, and Daffodils are abundant and very good. Begonia Gloire de Lorraine is well flowered. Lily of the Valley in pots and in boxes is remarkably good. Some good plants of Lilium longiflorum are seen: they vary in height, some are 3 feet. Callas (Richardias) are procurable in various sizes. Spiraea japonica is good. Store boxes of various summer bedding plants are seen, and there is quite a large trade in hardy flower roots. If the weather remains favourable Pansies and Violas will be in bloom shortly. Primulas, Polyanthes, and Daisies are already well flowered. A. H., Covent Garden, Wednesday, March 9, 1910.

TRADE NOTE.

MR. CHARLES TAYLOR.

Mr. Chas Taylor has terminated his connection with the firm of Messrs. Thos. Cripps & Son, Ltd., with whom he has been for the past 21 years, and has joined the firm of Messrs. John Waterer & Sons, Ltd., Bagshot, Surrey. He will represent Messrs. J. Waterer & Sons, Ltd., in the south-eastern counties.

CATALOGUES RECEIVED.

RANSOMES, SIMS & JEFFRIES, LTD., Orwell Works, Ipswich—Lawn Mowers.
TILLEY BROS., 133, London Road, Brighton—Farm Seeds.
WM. ARTHUR & SON, Nethergreen, Ramsgate—Hardy Plants.

LAW NOTE.

ALLEGED CORRUPT GIFTS BY A NURSERY FIRM.

THE case mentioned on p. 138 of the issue for February 26 came again before Mr. Plowden, at the Marylebone Police Court, on March 3. On February 23 the Secret Commissions and Bribery Prevention League Incorporated brought a charge under the Prevention of Corruption Act, 1906, against Herbert James Cutbush, of the firm of Messrs. Wm. Cutbush & Son, nurserymen, Highgate, and Richard Holden, a traveller in Messrs. Cutbush's employ, in respect to corruptly giving a gallon of whisky to Charles Kidd, gardener to Captain Starkie, of Huntroyd, Padiham, Lancaster. Mr. Cutbush was also summoned for rendering an account for goods supplied to John Brown, a gardener employed by Lord Cowley, of Cold Overton Hall, Oakham, Rutland, containing statements which were false and erroneous in material particulars. Mr. Bodkin prosecuted, and Mr. R. D. Muir defended. The case for the prosecution was based on the evidence of William Morgan, formerly ledger clerk in Messrs. Cutbush's employ, but who was discharged last year. Morgan brought to the notice of the prosecution certain documents, which he abstracted from the office at Highgate, including an invoice for 300 Tulip bulbs, which he declared was substituted for a traveller's order for one case of Cutbush's insecticide, alleging that this was interpreted in the office as meaning a case of whiskey. The prosecution, however, could not produce the order for Cutbush's insecticide which Morgan says was received.

At the adjourned hearing on March 3, Mr. Bodkin asked that the defendants should be committed for trial at the next Lancashire assizes, as the actual giving of the gift took place at Padiham. Mr. Plowden was of opinion that the gift was given at London, but he consented to commit the defendants for trial at the Lancashire assizes. The prosecution asked that the other charge relating to Lord Cowley's account be adjourned *sine die*. Mr. Muir objected, stating that the defendants had a perfect answer to each charge, and that in this case the accounts were made out in the form they were sent, at Lord Cowley's request. Mr. Plowden thought it was unfair to have this second charge hanging over the defendants' head indefinitely which he was prepared to meet, and therefore adjourned the case for two weeks.

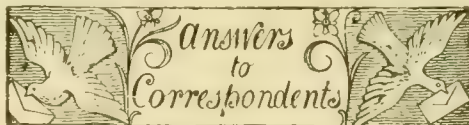
ENQUIRIES AND REPLIES.

ALPINE PLANTS FOR GRANITE DUST.—What Alpine plants may be grown in granite dust, either pure, or mixed with granite chips or river gravel. The dust is very soft and silky, and might suit, one would think, some things admirably, but I am doubtful whether it might not hold the wet in winter too much. *A. C. Bartholomew.*

—You will be well advised to mix the dust with at least its own quantity of granite chips, varying in size from $\frac{1}{2}$ inch diameter to $\frac{1}{2}$ inch diameter. A very small addition of leaf-mould (a spadeful to a big barrow-load), and you will have, if you make the moraine at a good raking slope, a bed which will be perfectly secure against excess of damp in winter. Let the moraine have full exposure, and, if possible, water flowing at its foot. For, regarding its inhabitants, one has to remember that many plants are indifferent as to whether they grow in calcareous, or primary moraines. To begin with confessed lime-haters, your list should be headed by *Eritrichium nanum*. Then come *Androsace glacialis* and *A. imbricata*, for certain; *A. obtusifolia*, *A. Lageri*, and, indeed, most of the high Alpine species are worth a trial, though some, like *A. villosa* and *A. helvetica*, are normally limestone plants. Of the Alpine Buttercups, *R. glacialis* is non-calcareous, and *R. alpestris* is happy on any formation. I should certainly try *R. anemoneoides* and *R. kernerranus*. Of Campanulas, *C. pulla*, *C. cenisia*, *C. Allionii*, and *C. excisa* are sure to succeed on the granite moraine, and I cannot think it likely that *C. collina*, *C. pusilla*, *C. Raineri*, and *C. Zoyzii* would offer any difficulties. In such damp places as the Buttercups prefer should also be tried the more ill-tem-

pered, non-calcareous Gentians: *Gentiana bavarica*, *G. pumila*, *G. imbricata*, *G. Rastanii*, and *G. pyrenaica*. *G. brachyphylla* also likes granitic formations, but drier levels. Of Pinks there are *Dianthus glacialis*, *D. sylvestris*, *D. microlepis*, and *D. callizonus*. *D. alpinus* seems calcareous, and *D. neglectus* apparently hates the moraine. The only *Primula* I recommend as yet, is the difficult and beautiful *P. glutinosa*. The Violets I should try are *V. cenisia*, *V. heterophylla*, *V. pinnata*, and *V. pedata*, possibly also *V. nummularifolia*. All the Aizoon Saxifragas and *S. Vandellii* seem to avoid limy moraines, and should do well. I have doubts as to the others; the race as a rule is staunchly calcareous, but *S. oppositifolia* and its difficult varieties, *blepharophylla* and *Rudolphiana*, also the kindred species *S. retusa biflora* and *S. Kotschyi* should all enjoy a granitic moraine. Then there are the Alpine Poppies, also *Veronica canescens*, *Mountain Artemisia*, *Geum reptans*, *Morisia hypogaea*, *Mertensia primuloides*, the minute *Andromedas*, *Omphalodes*, *Lucilie*, &c. Nor, as I say, should I be too timid about the many plants common to both formations, though it would be rather a more risky experiment to attempt *Iberidella*, *Rhodanthamnus*, *Papaver rheticum* and others, which are generally or invariably found constant to limestone formations. Of course, my list is hasty and provisional; many other species might easily occur to the moraine owner, and my selection includes difficult and easy plants alike. *Reginald Farrer.*

APPLES AS CORDONS (see p. 144).—Assuming that it is intended to train the cordons obliquely, the heads of the trees should point any degree between south and west. The reasons for this are as follows: The clusters of bloom on trees so trained are less liable to injury from east or north winds, frost, cold rains and sleet. The trees shelter each other, as it were, from the cold blast, which would not be the case if they pointed east or north. The individual blooms pointing towards south or west are less likely to be injured by late spring frosts, as the frost will pass from them gradually as the sun rises, and the essential organs of the flower will become dry before the sun can injure them. It is not always the frost that destroys the flowers on Strawberry plants and fruit trees, but the action of the sun while the organs of the flowers are partially frozen. *R. P.*



*** The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

ASPIDISTRA: *Correspondent.* You are quite right, the specimen is a flower of *Aspidistra lurida*. The plant always produces its flowers close to the ground level. It is a member of the Natural Order Liliaceæ. The flowers are supposed to be commonly pollinated by slugs.

BOOK OF HORTICULTURAL DESIGN: *W. H. M.* A good work on landscape gardening, such as *The Ethics of Garden Design*, *The Art and Craft of Garden Making*, both by Thomas G. H. Mawson, or *The Art of Landscape Gardening*, by Humphrey Repton, edited by John Nolen, would be suitable for your purpose.

FASCIATED LILIUM: *J. W., Natal.*—The specimen of fasciated *Lilium* shown in the photograph you have been good enough to send us is not by any means an uncommon example. A very large number of instances of fasciation in *Lilium* are received at the office of this journal, probably more cases than arise in any other genus. *L. auratum* appears to show fasciation even more commonly than the other species. Your specimen is undoubtedly *L. speciosum* (lancifolium), either the roseum or rubrum variety. A fasciated specimen of *Lilium dalmaticum* was figured in our issue for October 16, 1909.

FRUIT ROOM: *S. P. E.* In the issue for November 6, 1909, p. 306, there were published illustrations and a description of the fruit room at Dover House. If you desire to

construct one of the best type, you cannot do better than follow the design there given, making the structure smaller or larger according to your requirements.

INSECTS IN SOIL: *W. E.* The animal twisted into a complicated knot is a Nemeritine worm belonging to the genus *Lineus*. It is of no importance from a horticultural point of view.

NAMES OF FRUITS: *P. L. H.* Annie Elizabeth.

NAMES OF PLANTS: *S. F. & Co.* *Arrhenatherum avenaceum*.—*J. P., Kildare.* Your plant is not a Hoya, but an Orchid. It is commonly known in gardens as *Dendrobium pulchellum*, but has since been named *D. Loddigesii*, as the former name had previously been given to another species. It is the *Dendrobium Seidelianum* of Reichenbach.—*P. McL.* 1, *Dendrobium nobile*, good variety; 2, *D. Pierardii*.—*A. R.* 1, *Dendrobium Hedyosmum*; 2, *D. transparens*; 3, *Pholidota imbricata*; 4, *Cœlogyne sparsa*; 5, *Pleurothallis lateritia*; 6, *Epidendrum oncidoides*.—*H. G. L.* *Dendrobium superbum*, commonly called *D. macrophyllum giganteum* in gardens. The odour of medicinal Rhubarb is common to the section.—*Lich.* 1, *Begonia incarnata*; 2, *B. maculata*; 3, *Asclepias curassavica*; 4, *Codiaeum macrophyllum*; 6, probably a form of *Codiaeum trilobum*. The form of the leaves vary considerably on the same plant.—*W. S.* A species of *Trillium*. We are unable to name this with certainty without the flowers.—*S. B.* There is only one species of *Chimonanthus* in cultivation, namely, *C. fragrans*.

NECTARINE FLOWERS: *Lich.* The Nectarine flowers show imperfect development in the ovary, the pistil being less than half its proper length and having no stigmatic surface. Such flowers cannot, of course, bear fruit. It is probable that the condition is owing to imperfect maturation of the shoot and bud.

PEACH ROYAL GEORGE: *P. H. R.* The damage to the buds has been caused by a fungus, *Coryneum Beijerinckii*, which also attacks the Cherry, Apricot, Almond and Plum. According to Dr. M. C. Cooke, the young leaves, in spring, are found to exhibit red or rosy spots on the under surface as well as on the young shoots. Later on, the tissue in such places turns brown and dies, when the fungus appears in minute black dots, which are grouped on the dead spots, and in these the conidia are produced. No remedy is known; all that can be done is to remove and burn the diseased shoots.

PLANT CULTIVATION AT KEW: *J. C. H.* It is scarcely fair to judge the plants at Kew by the ordinary standards. Many of them are grown only for collection or botanical reasons. These have little horticultural interest, and a considerable number do not thrive under glass-house conditions. It must also be borne in many that many of the gardeners are youths who have entered Kew for its educational advantages; indeed, it might be said that cultural excellence is not the sole, or even the principal, object, seeing that all the gardeners, except the five departmental foremen, are young men, engaged for a limited term (two years), during which they are moved from one department to another. This is not conducive to good cultivation, however helpful it may be to the young men employed at Kew. The director is a distinguished botanist by profession and a soldier only by courtesy.

VINE SHOOT: *H. J. W.* No fungus or insect pest is present in the vine. The cause of the abnormal growth is not understood, but such shoots never bear fruit, and therefore should be removed.

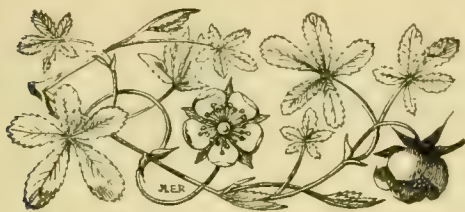
VIOLETS: *B. H.* The plants are affected with the fungus (*Ascochyta violæ*), which is now so common amongst cultivated Violets. As the disease spreads rapidly, and is difficult to eradicate, it is best to burn the old stock and start afresh with healthy plants. Be sure to remove the old soil, and thoroughly cleanse all parts of the frame before planting the new stock.

Communications Received.—*J. H. G.*—Liverpool Hort. Assoc. *B. L. H.*—*S. A. A.*—*J. A. C.*—*A. J. C.*—*H. A.*—Reading Gardeners' Assoc.—*B. P.*—*H. W. W.*—*E. J. L.*—*S. F. G.*—*H. H. P.*—*B. G.*—*J. C.*—*E. S. S.*—*W. F.*—*A. D.*—*M. B.*—East Java—*T. W. Cowburn*—*C. H. Firecroft* *A. B.*, *La Mortola*—*E. N.*—*W. H. Y.*—*Lunnean Soc.* *J. D.*—*F. M.*—*R. P. B.*—*Rev. H. F.*—*W. I.*—*C. T. D.*—*R. M. L.*—*C. F. K.*, *Potsdam*—*W. H.*—*H. W.*—*Journeymen*—*J. M. F.*—*C. M.*—*J. H.*—*P. C.*—*C. S.*



EUCALYPTUS CORDATA. CALYX WHITISH-GRAY; STAMENS, YELLOW.

FROM SPECIMENS GROWN IN MR. A. J. MORGAN'S GARDEN, PORTHGWIDDEN, CORNWALL.



THE Gardeners' Chronicle

No. 1,212.—SATURDAY, March 19 1910.

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FUNGICIDES.

THE Eleventh Report* from the Woburn Experimental Fruit Farm is concerned almost entirely with the subject of copper-containing fungicides, their chemical and physical properties, the nature of their fungicidal action, and of the scorching which, under certain circumstances, such fungicides produce on the sprayed parts of plants. The results of these researches appear at a time when growers are paying increased attention to spraying as a preventive against fungus diseases, when—to give but one instance—gardeners, as well as commercial fruit-growers, are learning by experience that clean Apples and Pears, free from all trace of "scab," can only be obtained in this country if the trees are protected by the proper spray.

Spraying experiments on a practical, commercial scale have shown in Kent and elsewhere in England—just as they have shown in all the fruit-producing countries of the world—that Bordeaux mixture is by far the most efficacious spray yet discovered for "scab" and fungus diseases generally.

Considering the importance of Bordeaux mixture for the fruit-grower, whether amateur or commercial, it will be well to note first the information which the Eleventh Report gives on this subject.

Although the value of Bordeaux mixture was demonstrated by Millardet so long ago as 1882, it was not till 1907 that, thanks to Mr. Pickering's investigations, the exact chemical nature of Bordeaux mixture was elucidated. Thus, of this fungicide it may be said that France discovered it, the United States demonstrated practically the efficacy of various modifications of the mixture, and England, through Mr. Pickering's labours, supplied the explanation of its true chemical composition.

With respect to the manner in which Bordeaux mixture exerts its fungicidal action, the last word is still to be said.

In the Eighth Report it was stated that "it seems to have been well established that the fungicidal action of Bordeaux mixture does not come into play until a week or more after it has been applied to the foliage," and the opinion is expressed that this action depends on the amount of normal copper sulphate liberated from the Bordeaux mixture by the action of the carbon dioxide and moisture in the air. With regard to this point, we find, in the Eleventh Report, the statement that "There can be no doubt that some soluble copper is liberated from ordinary Bordeaux mixture (the mixture made of equal parts by weight of copper sulphate and quicklime) almost at once after it is applied, i.e., within a few hours, possibly within a few minutes." This occurs, it is to be noted, even when an excess of lime is present, because, when the Bordeaux mixture is sprayed on to foliage, it dries up and the particles of basic sulphate of copper and of lime become separated from each other. Hence, when the former are attacked by the carbon dioxide, there may be no lime particles sufficiently close to decompose the copper sulphate formed. Analyses show that (as Millardet and Gayon stated) some of this soluble copper penetrates into the cells of the sprayed leaf. In one case ten sprayed leaves of the Bismarck Apple were found to contain 0.0003 grams of copper.

Mr. Pickering believes that this impregnation of the leaves with copper is one way in which Bordeaux mixture acts as a preventive agent; such "immunised" leaves affording an unsuitable medium for the growth of fungi; and the opinion is hazarded that "the copper doubtless passes gradually into the other parts of the tree and thus gets disseminated." With respect to both these points, however, proof is required before the explanations here suggested can be accepted. We may note in passing one interesting point which the experiments established, viz., that in every case where copper is found to have passed into the leaf, iron passes out of the leaf.

In the present Report, also, another suggestion as to the mode of action of Bordeaux mixture is made. According to this, the efficacy of this mixture is probably not due merely to the gradual way in which the copper is rendered soluble, thus entailing a prolonged action, but to the fact that the carbonate of copper produced from the insoluble basic sulphates of copper by the action of the air is deposited in a very adherent form, and constitutes a protective covering over the leaves, sufficient to prevent

fungus spores from germinating on them. This point, as we shall see, is one of considerable importance when estimating the value of the "Woburn Bordeaux paste." In leaving this part of the subject, we may mention that Mr. Pickering states that the chief and, he believes, the only agents which render the copper of the Bordeaux mixture soluble are the carbon dioxide and moisture in the air, and he concludes that substances excreted by the fungus spores or by the leaves of the plant do not normally play an active part in this process. Any fungicidal action on the part of the coating of copper carbonate on the leaf is to be attributed to the fact that it becomes soluble to a very slight extent, and thus prevents the germination of fungus spores which may settle on the sprayed leaf. The likelihood of a fungus spore, while boring its way into an epidermal cell, acting on the insoluble basic sulphates of copper in such a way as to render some of the copper soluble, and thus bringing about its own death, is, in my opinion, dismissed with too little consideration.

With regard to the Woburn experiments on the best method of making ordinary Bordeaux mixture, the results obtained are of considerable practical importance. The Bordeaux mixture that gives the best results is well known to be that in which the precipitate (which forms as the result of the chemical action between the copper sulphate and the lime) is as finely divided as possible, since it will then settle in the liquid more slowly than when the precipitate is less finely divided. Hitherto it has been thought that the best method of mixing for ensuring this result was to dilute both the copper sulphate solution and the milk of lime, as far as possible, before mixing them together. Mr. Pickering now furnishes proof, showing that though the above method (which is that generally adopted in the United States and our Colonies) gives a very finely divided precipitate, a still finer precipitate is obtained—and, as the result, a slower "settling" of it in the fluid—if a solution of copper sulphate as strong as possible is poured into the "milk of lime," which has been diluted as much as possible. As in all previous investigations, it was found that the worst quality of Bordeaux mixture was obtained when strong solutions of both copper sulphate and lime were mixed together, and then diluted with water to the proper strength. In all the numerous practical points touched upon in this Report, Mr. Pickering has expressed the results in as plain a language as possible, and since the method of making the best quality of Bordeaux mixture is a matter of the greatest importance to the fruit-grower, we will repeat here the paragraph dealing with this subject:—"Take the lime in as weak a condition as possible, and, consequently, the copper sulphate in as strong a condition as possible, and add the sulphate to the lime. The milk of lime, after being diluted with the bulk of the water, and stirred up several times during about half an hour, should be left for the grosser particles to settle before the sulphate is added to it, and after the addition of this, very little more stirring should be done." Instead, therefore, of having to provide himself, as heretofore, with a wooden tub capable of holding half the quantity of the water, in which to dissolve the copper sulphate, the

* Eleventh Report of the Woburn Experimental Fruit Farm, by the Duke of Bedford, K.G., F.R.S., and Spencer U. Pickering, M.A., F.R.S. 1910. Price 4s. 3d., post free. Summary, 6d., post free. (Amalgamated Press, Ltd.)

latter may be dissolved in a wooden pail or stone jar (iron or tin receptacles must not be used) at the rate of 2 lbs. to the gallon of water. The quicklime (in lumps) may be slaked in a galvanised iron tank, and then made into milk of lime with the rest of the water. If the copper sulphate solution is poured into the middle of the tank, and not allowed to touch its sides, the copper will unite with the lime before it can affect the galvanised iron. The mixture must be used fresh, and the tank washed out with water.

It may be noted, as showing the closeness of scientific reasoning, that every feature of the different results obtained by Mr. Pickering when making Bordeaux mixture by different methods was found to be in strict accordance with what had been previously established as to the chemistry of the mixture. The account of this harmony of the practical with the theoretical results—given as it is in clear and simple language—is most instructive reading. *E. S. S.*

(To be continued.)

FRUIT REGISTER.

LATE DESSERT APPLES.

MANY late dessert Apples are valueless as far as flavour is concerned. Although often classed as good late-eating varieties, I consider Barnack Beauty, Duke of Devonshire, Lord Burghley, Brownlee's Russet, Baumann's Red Winter Reinette, Gascoyne's Scarlet, Allington Pippin, and Sturmer Pippin quite useless.

All will agree that Cox's Orange Pippin is the ideal dessert Apple, but, nevertheless, I do not think as much use is made of this variety for a late supply as might be. The common notion is that it is a November Apple, that may possibly last in condition until the early part of December. Many varieties catalogued and described by writers as being wonderful successors to Cox's Orange Pippin are not equal to some late culinary Apples, as, for instance, Newton Wonder and Annie Elizabeth. But those who find fault with what obtains should be prepared to offer something better in its place. My remedy is to grow a greater number of trees of Cox's Orange Pippin, for this Apple, if stored with care, will, with reasonable attention, keep well into the early part of March, or even longer.

If Apples are required after that date—and it is only in a few instances that they are—supplies of Cox's Orange Pippin and many other excellent varieties may be obtained from Tasmania, British Columbia, and Canada. Many of these imported Apples are much better in point of flavour than prejudiced persons will admit. At one time I myself thought them inferior, but I have since had sufficient experience to change my opinion. It would be most difficult to find an English Apple, always excepting Cox's Orange Pippin, superior to Grime's Golden Pippin in November. I mention Grime's Golden Pippin variety as an instance of how prejudice may cause English consumers to miss a really fine Apple. Another English Apple that might be made greater use of during the winter for dessert purposes is Blenheim Pippin. With me it will keep quite fresh until the end of February, and is distinctly good, not only for dessert, but also for cooking. For use in tarts and stewing no sugar is needed with Blenheim Pippin, a point likely to be appreciated by those who have to avoid the use of sugar. With a long experience of its requirements, I find that the trees will crop quite as early and as freely as many other varieties. To induce early fruitfulness in Blenheim Pippin, an extension of branch, rather than close, pruning is required. *E. Molyneux.*

CARNATIONS.

(Concluded from page 162.)

SUPPORTS FOR PERPETUAL CARNATIONS.

WHERE many plants are grown, it is impossible to support them with sticks and raffia ties. The ordinary Carnation support, formed of three or four wire rings at different heights, saves a lot of time, but it is hardly high enough for the robust varieties in the light days of spring and summer. Accordingly, a shorter support with two rings only is generally used, and this is supplemented by a sort of network of wires and strings so constructed that after the plant has grown through the rings it is supported by a series of squares, four in number (if the two-ring support is used), one above the other. Two sides of each of these squares—those running lengthways with the bench—are formed of wire, and two—those which run transversely across the bench—of string. The adjust-

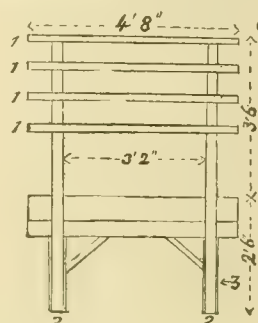


FIG. 74.—APPLIANCE FOR SUPPORTING CARNATIONS.

Elevation as seen from the end of bench: (1), wooden cross-bars; (2), uprights; (3), bench legs.

ment is as follow:—To the ends of each bench, outside the bench, are fixed two uprights of 3 inch by 3 inch quartering, either 2 feet 2 inches or 3 feet 2 inches apart. The tops of these are 3 feet 6 inches above the top of the bench. Four bars of 2 inch by 2 inch deal are secured by bolts to the uprights on the outer side, i.e., the side remote from the bench, at right angles to the uprights. The centre of the lowest bar is 18 inches above the top of the bench (if two-ring supports are used), the next 8 inches above that, the next 8 inches above that, and the next at the top of the uprights. The 2 inch by 2 inch bars are as long as the external width of the bench. We will suppose the bench to be 4 feet 8 inches wide externally, and that it has six plants 9 inches apart in each row. Into the 2 inch by 2 inch bars at one end of the bench galvanised iron

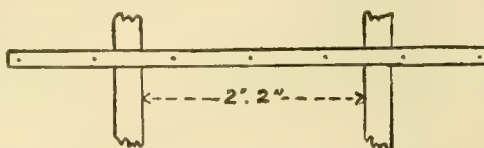


FIG. 75.—A CROSS-BAR SHOWING THE HOLES WHERE THE STRAINING BOLTS OR BLIND-HOOKS ARE INSERTED.

threaded blind-hooks must be inserted (on the inside, towards the plants), one hook an inch from each end of the bar, the others at distances of 9 inches apart—seven hooks in each bar. The bars at the other end of the bench must be drilled, holes being made at the same distances as those at which the hooks are set, for the insertion of 6-inch straining bolts and nuts such as are used for espaliers. Pieces of wire are cut of the same length as the bench. The wire is looped on to a blind-hook and strained up on a bolt. Galvanised wire, gauge 16 or 17, answers well. An iron washer must be inserted between the wood and the nut of the bolt. The 3 inch by 3 inch uprights must be made perfectly firm at the base by being concreted into the ground or otherwise. In place of the wooden

straining ends—iron ones may be used, and are recommended on account of their lightness. A 4 foot 8 inch bench will take seven wires on each cross-bar. When these are in position, pieces of fine string as long as the width of the bench, plus 2 or 3 inches, are tied on one of the outside wires. Two such strings, about 3 inches apart, are set between each row of plants. For stringing, the services of two men are requisite, one man standing on either side of the bench. The strings, having been made fast to one of the outside wires, are wrapped once round each of the five inside wires, and secured by a knot to the other, outside wire. They are placed, of course, at right angles to the wires. Care must be taken not to pull the strings too tight, or the wires will be drawn together. If a light rod with seven notches cut in it 9 inches apart is laid athwart the wires and pushed along as the work proceeds, it will, in some measure, prevent this. When the bench is finished, the string will probably be "saggy" in places. Light Bamboo rods, cut to the requisite lengths and slotted at the ends so as to engage the outside wires, may be inserted as spreaders to rectify this. In like manner, if the wires sag—as they will do if the bench is a long one—they may be supported by Bamboos slotted at one end, the other end being thrust into the soil of the bench. If these are inserted close to the spreaders, one on each side of the bench, placed under the second wire from the outside, will suffice. Another layer of wires and strings must not be commenced until the one below is completed, and the start must always be from the lowest. The strings in the different layers must be exactly over each other. Some of the shorter varieties, notably Mrs. Lawson and Britannia, do not usually require the top layer. The result of the wiring and stringing is a series of squares over each plant, each square measuring about 9 inches by 6 inches. The only care of the grower now is to keep each plant strictly within its own circles and squares.

Regarding the tripod Carnation supports, it should be mentioned that the diameter of the lower circle is $4\frac{1}{2}$ inches, that of the upper $5\frac{1}{2}$ inches; that a two-ring support is 18 inches high, nearly 6 inches being under the soil; and that the rings are 9 inches apart. The three-ring support is 9 inches higher, and the diameter of its top ring $6\frac{1}{2}$ inches. The gauge of wire is 12. The supports fold for packing and storing.

STIMULANTS.

Many special Carnation manures are on the market at present, but growers on a large scale will find that they save time and money in the long run by having their soil analysed. They will then see where it is deficient, and be able to supply the deficiency by buying the requisite manures at first cost. Stimulants must never be given till the plants are in bloom, and the pots or benches are full of roots. Then phosphate of potash and nitrate of potash— $\frac{1}{4}$ ounce of each in a gallon of water—may be applied two or three times at intervals of a fortnight. This is a complete manure. If the petals stick together, and the buds will not open, the plants are over-fed. Certain varieties, among them Mrs. Burnett, will stand more feeding than others. Never suppose that a sickly plant can be helped by stimulants. The patient must be well before high feeding commences. Clay's fertiliser, a teaspoonful scattered on each pot, is a good thing for Malmaisons showing bud.

FOR INSECTS AND FUNGAL PESTS.

A dusting of Apterite is excellent when soil benches are being filled for perpetual Carnations, or it may be applied when stacking the soil.

When the old plants are cleared out of the benches—usually in July—the soil should be removed at once, the benches should be scrubbed and be lime-and-sulphur-washed inside.

The soil is best run straight out of the houses on to the land from which the turf for the new season's soil was removed. It may be spread out

and sown down in autumn. Messrs. Sutton supply seed specially suitable for this purpose. It consists of grasses which root very freely, and sod sown with these will be ready to cut up in three years or so.

The XL-All vaporising compound destroys green-fly; cupram, applied through a spray nozzle or an Abol syringe, with rust and spot. For red spider, moisten the paths, &c., in dry weather, and spray with salt water—2 ounces salt to each gallon of water—applying as forcibly as possible. Two days later the plants must be sprayed with clean water. The salt spray may be repeated once a fortnight. Remember that damp is inimical to red spider, but productive of spot.

west in the winter, north and south in the summer. When erecting houses it is well to bear in mind that in England the winter lasts longer than the summer, and that Carnations are not much in request between July and September.

It is necessary to be able to get at the soil benches from both sides. They must, therefore, not be set close against the side walls of the house. A space of at least 20 inches should be left between wall and bench, and an alley 2 feet wide should run between each couple of benches. Carnation houses should be not less than 5 feet 6 inches high at the eaves, though 6 feet is better. "Side glass" is therefore desirable, and every light should be made to open. It is impossible

in rainy summers when the pots are liable to get water-logged. Anthracite ashes are to be greatly preferred to coke or bituminous coal ashes for standing plants on. Seemingly the sulphur in the latter repels the roots.

By July 10, or earlier, the plants should be ready for transference to their flowering pots or benches. Early planting is recommended, but the pots should be full of roots before it is begun. Before planting the house must, of course, be thoroughly cleaned and fully shaded. Spray the plants when they are in their places, and do the first watering by instalments, i.e., do not soak the bench right through on the day of planting.

Give water to Carnations in pots as to other greenhouse plants—when the pot rings hollow. The benches may be soaked right through at a watering as soon as the plants have struck root in the bench soil. Be sure that the ball, as well as the surrounding soil, is soaked. The soil in the benches must be well firmed at planting time.

SOUVENIR DE LA MALMAISON CARNATIONS.

"Malmaisons" should be layered as soon as possible after they have flowered and the side growths have hardened sufficiently. They are best layered in cold frames, the back of the frame being placed to the south. The frames are half filled with soil, the plants are knocked out of their pots and put down horizontally. Light and extreme heat is kept out of the frames by putting mats over the lights (which should be tilted) till the layers begin to root. A handful of fine, sandy soil placed under the tongue of each layer will assist root formation. As soon as rooting commences, sever the layers from the parent plant. Layers should be ready to be potted up into 4-inch pots about a month after they have been put down. They should be in their flowering (6-inch) pots by October. No manure is used in the soil for the first potting.

"Malmaisons" may be struck in a sand bench in the same way as tree Carnations, provided that the cuttings can be obtained early in the year—a sand bench must not be used, at any rate, after April, as the air temperature is too high. "Malmaisons" propagated in the sand bench will be a little earlier than layered stock. Some varieties strike more easily in sand than the true Malmaisons (Princess of Wales and Blush).

The temperature of the Malmaison house in winter should be from 40° to 50°; 6° more is allowable if earliness is a desideratum, and in any case the temperature may be raised as the days lengthen. Second-year plants produce bloom earlier than first-year, but the bloom is usually smaller. Plants to be flowered a second year must be potted on into 10-inch pots as soon as they have bloomed, or very strong plants may be transferred first into 8-inch or 9-inch, and later into 11-inch or 12-inch pots. A one-year-old Malmaison throws one bloom; a two-year-old about six or eight blooms, a third year's plant (in a 16-inch pot) about 50 blooms. Malmaisons are best supported by Bamboo canes. A convenient wire support for sustaining the petals, if "Malmaisons" are used as pot plants, is supplied by Messrs. Wood & Sons, of Wood Green. If used as cut flowers, most Malmaisons require a card at the back, inserted between calyx and petals. For perpetual Carnations that have split their calyces rubber rings are used.

CONCLUDING HINTS.

All Carnations must be disbudded to one bud—the top one.

Finally, as the Carnation is prone to fungous pests, let cleanliness prevail everywhere—on paintwork and glass, in pots and benches, on Bamboos and wires. Never leave disbuds, old plants, or refuse of any sort lying about. Consign it, not to that breeding ground of pestilence, the rubbish heap, but to the incinerator or stoke-hole on the instant.

At fig. 76 an illustration is given of the proper system of packing Carnation flowers for market. E. A. D. White.



FIG. 76.—BOX OF CARNATION BLOOMS AS PACKED FOR MARKET.

Always keep a little sulphur brushed on the flow-pipes in winter.

VENTILATION AND ASPECT OF HOUSES.

Both Malmaisons and perpetual Carnations must have ventilation every day in the year, particularly when grown in small houses. The air temperature in the houses containing perpetual-flowering varieties should not fall below 42° at any time when plants are flowering or coming into flower; 50° to 56° is the best temperature. The Lawson type will stand more forcing than the Enchantress breed. Sharp rises and falls must be guarded against.

Carnations do best in houses running east and

to have too many ventilators on both sides of the ridge of large houses. The doors of the house should open straight into the alleys so as to avoid having to turn corners when wheeling in soil.

As to heating, 1 foot of 4-inch piping to every 35 cubic feet of space will suffice. Sectional boilers burn less coal, but require deeper stoke-holes than horizontal tubulars.

BENCHING AND WATERING.

It is usual to stand the perpetuals on ashes in the open air while they are in the 5½-inch pots. In our climate they are undoubtedly better when kept always under glass, if room can be found for them. This is particularly the case

NURSERY NOTES.

PRIMULAS AT FOREST HILL.

THE great demand for *Primula sinensis* as a greenhouse flowering plant is readily understood when a visit is made, at this season, to some seed-nursery, such as that of Messrs. James Carter & Co., at Forest Hill. We speak of this variety as the Florists' *Primula*, and also as the Chinese *Primula*, terms that at once suggest the species, notwithstanding the hosts of other species grown in gardens that are natives of China. There are few places where *P. sinensis* is not grown, as it makes an ideal plant for pot culture, is easily raised from seed, and blooms when other flowers are scarce. At the Forest Hill nursery, most of the glasshouses are filled with the various types of the plant in a great selection of colours, for the purpose of producing seed. Messrs. Carter raise each year about 13,000 *Primulas*, but many are sold either as seedlings or as pot plants, the stock for seed purposes numbering about 8,000. They are staged in batches of the respective varieties, some large, according to the demand for the seed of that particular kind. No precautions are taken to prevent cross-fertilisation, as there are no insects about at this time, and the pollen is not disseminated readily by other means. Each bloom has to be pollinated by hand, and it is the duty of the operator to see that the stigma of every individual flower is brushed two or three times. No matter how carefully this work is done, some of the types never produce a great quantity of seed, although many are very free in this respect. For instance, in Messrs. Carter's experience, the pin-eyed varieties are not so prone to set seeds as those of the thrum-eyed type; such, for instance, as the old *alba magnifica* variety. This is still a great favourite with many, and there is no trouble in obtaining a supply of seeds, but the flowers are rather small, and some people prefer to grow King Edward, which may be termed an improved *alba magnifica*. The Giant varieties—with extra large flowers—are all bad seeders. The operator can tell at a glance which blooms have been pollinated, as the pollen gives a greyish appearance to the stigma. Unlike the older types of doubles (e.g., *alba plena*) those with inner up-standing rows of petals are fertile.

It is a common practice in gardens to pinch out the first inflorescence in order to procure two or three heads of blooms instead of one, but the first spike always gives the best seed result. Seed harvesting is begun about the first week in June if the conditions are favourable. The capsules are well dried for about a fortnight on shelves in a warm greenhouse and then cleaned by means of sieves of various sizes. Seeds are at once sown for next year's stock in a mixture of equal parts leaf-mould and loam, incorporated with plenty of sand, in trays, and germinated in a temperature of 80°. In a normal season this will be about the middle of June. Last season was an unfavourable one, and it was difficult to get the seed to ripen, so in many cases the sowing was not performed before the middle of August. The seedlings are first pricked off into boxes and later into 60 pots, and then removed to a cold pit in the middle of August, where they remain till the middle of September. They are then brought into greenhouses and potted into 4½-inch pots by the end of September. The seedlings must not be kept too long in the cold pits, because there is a danger of damping. During their growing season they require plenty of light and fresh air and shading from bright sunshine. Flowering from the earliest batch commences about the middle of February. The star or stellata varieties are the easiest to cultivate and the seeds of this type germinate with the greatest freedom. Their flowers are distinguished from those of the *sinensis* type by the facts that they are never fimbriated at the margins, nor do the petals overlap. They have just the simple, smooth

corolla with indented petals. A few particulars of the varieties may be useful. We have already referred to King Edward; the flowers are amongst the largest of the white kinds, and are produced with freedom. The petals are prettily frilled. The plants of this variety occur in two forms on a bright-red and on a dark-red stem, but this, apparently, has no influence on the colour of the flowers. Crimson King is the finest of its shade, and is as popular as ever with growers. It is one of the freest in flowering and most prolific in seeding. The inflorescence is borne well above the foliage, the dark green leaves showing them to advantage. Bouquet White belongs to a distinct type, which originated with Messrs. Carter. A main stem bears a truss of flowers, and others are borne in the axils of the leaves where the stem arises. The calyces of the bottom flowers in the truss are foliaceous, each like a united whorl of leaves. The stem may develop a second tier of flowers. Carmine is really a rich shade of pink, deepest at the margin and passing to pale pink with a greenish-yellow eye. It is a free-flowering variety, three stems being common, each with a good truss of blooms. This variety also pro-



MR. E. J. ALLARD.

duces secondary whorls of flowers. Prince of Wales is a fine double salmon *Primula*, very free and useful for a supply of cut blooms.

Lilac Queen is a double-flowered variety which has a very long stem to the blooms. Elaine is of the Palm-leaf type. The plants are very robust growers and furnish a profusion of blossoms, which often arise tier after tier. It is a good doer and one of the best *Primulas* in cultivation. Although the "wood" is dark the flowers are white. Holborn Crested is rose-pink in colour. The creasing is seen in the edges of the petals, and this character is also observed in the foliage, which is more cut than in most of the others, there being about eight divisions. It readily produces a number of heads, provided the first one is pinched out. Holborn Queen has a good bold spike of white flowers, the stem and leaf-stalks being also pale. Holborn Rose is of the Fern-leaf type. The colour is nothing remarkable, but the blooms are large and the plant is a strong grower.

There is also a Fern-leaved form of the Elaine variety, each leaf being divided about eight or nine times on either side and narrower and longer than the Palm-leaf. Some of the flowers measured 2 inches across. Aurora has double pink blossoms that are useful as cut blooms. Oak

Leaf is a new variety not yet in commerce. The leaves are like those of the Oak-leaved Pelargoniums. The rather small flowers, more double than most varieties, are of a light salmon colour. In the variety Princess of Wales the white, double flowers are splashed with red. Giant Salmon produces flowers 2½ inches in diameter. It is a very fine variety, throwing a strong flower-spike, the edges of the petals being almost plain. A novelty is seen in Orange King, the flower-buds being of an orange tint, although the expanded blooms are a shade of salmon. The orange is very pretty, and would make a fine break in *Primulas* if it could be obtained permanently in the blooms. Giant White is new. It is something like King Edward, but the "wood" is always dark, thus throwing the white flowers into greater relief. The flower-stems are tall. The best of the blue-flowered varieties is True Blue, there being, in addition to Light Blue already mentioned, a Dark Blue. But the tone in all of these leaves much to be desired, although, no doubt, their perfection is only a matter of time. The stellata or star *Primulas* are represented by batches of white, crimson, pink, salmon, blue (palest lavender), and lilac. We have not enumerated all the varieties which attracted our attention, but those to which we have referred suffice to show that Messrs. Carter cultivate a fine selection of this popular flower.

INNES HORTICULTURAL INSTITUTION.

MR. E. J. ALLARD, foreman of the outdoor departments of the Botanic Garden, Cambridge, has been appointed garden superintendent of the Innes Horticultural Institution. Mr. Allard commenced his career in gardening at Gore Court, and afterwards was employed for some months with Messrs. Sander & Sons, St. Albans. In 1895 he removed to the Botanic Garden, Cambridge, as an improver-gardener. Three years later he went to the Royal Botanic Gardens, Kew. After serving the usual period at Kew, he returned to the Cambridge Botanic Garden to take up the duties of foreman in the plant houses, a position he occupied for five years. Later, he became foreman of the outdoor departments, where he served for another five years. Mr. Allard has thus had wide experience at Cambridge, which will fit him for experimental and other work. For this there will doubtless be full scope in the development of an institution that must have an important influence on British horticulture. Mr. Allard entered on his new duties on the 12th inst. His name is associated with two good hybrids he has raised—*Nepenthes Allardii* and *Passiflora Allardii*.

NOTICES OF BOOKS.

THE FLORA OF COSTA RICA.

COSTA RICA is the smallest of the seven areas into which Mexico and Central America are divided for phytogeographical purposes in the Appendix to the *Botany of Salvin and Godman's Biologia Centrali-Americana*. It is less than 25,000 square miles in extent, that is, about half as large as England and Wales. The centre of Costa Rica lies in 10° north latitude. The country is very mountainous, with a number of volcanic peaks, the highest, Irazu, reaching 11,500 feet. At the date (1887) of the part of the *Biologia* in question, the botany of Costa Rica was very imperfectly known, and what was known was mainly due to the labours of A. S. Oersted, from 1846 to 1861. Nevertheless, some 1,200 species of vascular plants are therein recorded. Since then, various contributions to its botany have been published, and the latest, by Carlos Wercklé,* is full of interesting

* *La Subregion Fitogeográfica Costarricense*, por Carlos Wercklé. Sociedad Nacional de Agricultura de Costa Rica. Large octavo, pp. 54. Tipografía Nacional. San José, Costa Rica. 1909.

particulars, not so well marshalled, it must be added, as they might have been. The author begins with general sketches of the vegetation of the climatic zones, namely, the coast or tropical zone, up to 800 metres (about 2,650 feet); the temperate zone, 800 to 1,500 metres (about 2,650 to 5,000 feet); and the cold zone, 1,500 metres (about 5,000 feet) and upwards. There is no real frigid zone in Costa Rica, and such genera as *Ranunculus*, *Nasturtium*, *Draba*, *Cerastium*, *Arenaria*, *Stellaria*, *Geranium*, and many others, represented in the higher mountains of Mexico, do not occur in Costa Rica. *Gunnera insignis* is one of the most striking plants in the mountain flora, where, in the region of snows, its peltate leaves attain a diameter of 6 or 7 feet, borne on petioles of the same length and of corresponding thickness. Following his remarks on the vegetation of these several zones, Mr. Wercklé passes in review the most important families, in relation to their preponderance.

With respect to the Ferns, which number 600 described species, he says: "Los Helechos han alcanzado en Costa Rica un desarrollo asombroso. Hay, hasta ahora, 600 especies conocidas y descritas, pero estas representan apenas la mitad de las que forman la flora pteridófitas sin ignae de este país." This may be rendered: Ferns have attained an astonishing development in Costa Rica. At the present time 600 species are known and described; but they barely represent one-half of those constituting the unequalled Fern-vegetation of this country. He further states that there are no fewer than 100 arboreal species of *Cyatheaceae* in the temperate regions alone! This is certainly an astonishing and unparalleled concentration of species; but we cannot help expressing the opinion that the number has been reached by an unusually critical line of segregation. Passing on to other families, elaborated by different botanists, we encounter almost equally appalling numbers; but the author nowhere gives an approximate estimate of the number of genera and species represented in this small country. Respecting the *Bromeliaceae*, it is asserted that they have attained a greater development than in any other country, 300 species of epiphytal *Tillandsiæ* having been recorded. The total for the whole family is, however, not given.

Orchidaceae are also exceedingly numerous, but, on the whole, not so showy as those of Colombia. Palms are numerous, varied and beautiful, and the majority still undescribed or undetermined. *Arboreous Leguminosæ* are ubiquitous and especially numerous on the Pacific side, where they constitute a large element in the dense forests. Among other families abundantly represented in Costa Rica are: *Melastomaceae*, *Urticaceae*, *Compositæ*, *Myrtaceae* and *Euphorbiaceae*, under each of which the author has a number of instructive notes. A special chapter on epiphytic plants is of great interest to cultivators. From this chapter we hope to make some extracts on a future occasion. Miscellaneous notes constitute the concluding section of this little book. One relates to the native country of the Cocoa-nut and of the Banana. Concerning the former, Mr. Wercklé is in agreement with the best authorities that it is American, and has spread westward through the Pacific Islands. Few have ever doubted the genus *Musa* being wholly of old world origin. W. B. H.

FLORISTS' FLOWERS.

SWEET PEAS IN TUBS.

A GOOD display of Sweet Peas may be had by growing the plants in tubs and even in a back yard, provided they receive a fair amount of sunshine and the tubs are kept well supplied with water. Paraffin barrels cut in halves, and burnt out, are best, but if space is limited, or, if they are required for standing by the side of paths, lard tubs will be found most convenient. These should have a few holes drilled in the bottom to allow excess of water to drain away. Place a

good layer of crocks at the bottom of the tubs, and then a layer of short manure or decayed leaves. This will provide sufficient material for drainage purposes. The soil should be placed in the tubs to within a few inches of the top and made moderately firm. A mixture of ordinary soil and well-rotted manure is suitable. Should the compost be wet, do not ram it until it has become moderately dry, otherwise it will cake and leave the sides of the tubs when dry, allowing water, when applied, to run away without moistening the soil. The tubs or pails look tidier if painted green and the hoops black. Twelve seeds are sufficient for each tub. When the plants are a few inches high, they should be reduced to five in the case of paraffin barrels, and three in the lard buckets. Three good, strong plants are better than 12 weakly ones. By keeping the colours separate a better effect is produced than by mixtures. Frank Dolby (lavender), King Alfonso (crimson), Princess Juliana (primrose), Mrs. A. Ireland (bicolor), Elsie Herbert (white picotee), and Prince of Asturias (maroon) are six robust growers suitable for this method of planting. When the plants are well established weak applications of manure water, or a little Clay's fertiliser, will benefit them.

Staking may be done in various ways. Hazel sticks, trimmed neatly and tied together with small twine, serve well. The Peas will also cling readily to a lattice-work or wire. I have grown Sweet Peas in tubs to a height of 10 feet, and gathered exhibition blooms from them. George Herbert, *Caldew Common, Twyford.*

PROPAGATION OF DAHLIAS.

WHERE large, bold effects are desired many growers simply start the old roots again and plant them out at the proper time, but if fine individual flowers are required this plan will not do. For the latter purpose the old roots should be placed in a genial warmth—say a bottom temperature of 65°. When the growths are 3 to 4 inches long they should be taken and inserted as cuttings in a temperature similar to that in which the roots were. They will require to be shaded, but must not be kept too close or they will damp off. In two to three weeks they will be nicely rooted, and must then be potted off singly into "60" pots and kept growing. Whenever they have filled the pots with roots they must be given a shift—twice if necessary, so as to obtain at planting time, early in June, fine bushy healthy plants 15 to 18 inches high. A capital way to get fine Dahlia plants is to grow them from pot-roots. The latter may generally be purchased from a nurseryman, or a grower can prepare them himself in this way:—Pot up a collection of plants into large "60" or 4-inch pots, plunge them in ashes or other material in an open frame in June and allow them to grow on there right through the season. A stake must be placed to each plant and a bloom or two will be produced in August or September, which will enable the grower to see if the varieties are true to name. In spring, these roots are started, and one strong leading shoot is generally produced which makes a most vigorous plant that will flower earlier than plants produced from cuttings.

All sections of Dahlias are capable of being treated in this way. In the large nurseries, where Dahlia propagation is carried on extensively, the stock for sale is always worked up from cuttings. Many people have the mistaken notion that Dahlias will not strike as cuttings unless they have a heel, i.e., part of the old tuber attached to them. This is erroneous, as hundreds of thousands of cuttings are struck every season which are just cleanly cut below a joint. They must be inserted firmly in pots of fresh loamy compost, and it is well to cover the tops of the pots with a quarter of an inch of clean sand, which, to a great extent, prevents the cuttings from damping off. Grower.

The Week's Work.

FRUITS UNDER GLASS.

By B. GODACEF, Gardener to Sir ERNEST CASSEL, G.C.B., Moulton Paddocks, Newmarket.

Fruit trees in pots.—Trees which have set their flowers may now be afforded an atmospheric temperature of 55° to 60° at night, which may rise 5° during the day. If there is the least sign of aphid, let the house be vaporised with one of the nicotine vaporising compounds. Syringe the trees early in the afternoon on fine days, and close the ventilators of the house at the same time in order that the sunshine may increase the temperature. Ventilate the house freely in mild weather, but let this be done very carefully when cold winds are blowing, for the young leaves are very susceptible to injury from cold draughts at this season. Let any necessary disbudding be carried out and pinch the young shoots at about the fourth leaf. Occasional applications of diluted liquid manure will be beneficial, also light top-dressings of rich, loamy soil applied at intervals of three or four weeks. In order to provide for these top-dressings, collars may be placed on the rims of the pots. These collars may be composed of clay, cow-dung, and fine mortar rubble mixed together with water to the consistency of soft dough. Allow this mixture a few days to set, then mould it to the rim of the pot to form the collar. Such collars are not only neater than those of zinc usually fixed to the pots, but they greatly encourage the multiplication of surface roots.

Strawberries.—Plants on which the fruits are commencing to colour should be moved to a cool, well-ventilated position near the glass, where they will be fully exposed to sunshine. In the cooler atmosphere the fruits will gain in firmness and flavour. The use of liquid manure should be discontinued at this stage, and only sufficient clear water applied to prevent the foliage from flagging. As soon as the fruit is gathered, any plants it is intended to plant out-of-doors may be placed in a cold frame to harden. Successional plants are making considerable progress; they should be given careful attention, according to directions given in previous Calendars.

Strawberry plants in cold frames.—These plants may now be encouraged to grow quickly by so managing the frame as to make use of all the sun-heat available. If the plants are very lightly syringed on fine days, the frames may be closed as early as 2 p.m. When the flower-spikes appear, the plants should be removed to the house. Care must still be taken to protect plants in frames on cold nights, or the tender leaves might suffer injury from frost.

Young vines.—Plants which were cut back to two eyes are now growing freely. Keep them well up to the glass, and give them every encouragement to make strong, short-jointed growth. When the canes have grown to the required length pinch out the points and pinch the laterals and sublaterals immediately after the first leaf.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Deciduous species of Calanthe.—As mentioned in my last Calendar, many of these will now need repotting. This applies particularly to the earlier-flowering sorts, as *C. Veitchii*, *C. Wm. Murray*, *C. Victoria Regina*, *C. Burfordensis*, *C. Sedenii*, *C. Harrisii*, *C. Bella*, *C. revertens*, *C. Cooksonii*, *C. versicolor*, *C. rosea*, *C. luteo-oculata*, and *C. rubro-oculata*. The plants are already starting to grow, and when the new shoots are a few inches high, turn the plants out of their pots and shake away the exhausted soil, cutting off the old roots to about 1 inch; the stumps will help to keep the pseudo-bulbs steady in the new soil until the plants are established. Previous to repotting, carefully examine the base of each pseudo-bulb for scale insects. Select round, clean pots of sizes varying according to the requirements of the cultivator. The usual practice is to pot the pseudo-bulbs singly, but where accommodation for the plants is limited, four or five of the strongest bulbs may be placed into 6-inch pots and the same number of smaller bulbs into 5-inch pots. The pots should be about half-filled with clean crocks, and these should be covered with Sphagnum-moss. The potting

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of City Parks, Cardiff, Glamorganshire.

Advertisements Regulation Act, 1907.—It seems somewhat an irony of circumstance that while public bodies are striving, by the judicious planning of streets and buildings, the laying out of parks and open spaces, and the planting of trees in suitable thoroughfares, to add dignity and beauty to their towns, great numbers of ratepayers in their private capacity are doing everything in their power to nullify these good efforts. This unfortunate tendency on the part of some ratepayers can hardly be better illustrated than by the way in which every conceivable position in our towns and villages is converted into bill-posting stations. The present craze for ostentatious advertising is responsible for many of the ugly features in cities, and for the destruction of much beauty, even in the country-side. In the past the authorities have been almost powerless to deal with this matter, even when advertising hoardings were admittedly little short of a public nuisance. To remedy this condition of things an Act of Parliament—known as the Advertisements Regulation Act, 1907—was passed, which gives town councils a good deal more power to check advertising excesses than they formerly possessed.

Power under the Act.—Under Section 2 of this Act, a town authority has power to make by-laws regulating the posting and exhibiting of bills and advertisements of a certain size and character in the vicinity of public parks. By means of such by-laws, unsightly bill-posting hoardings or other means of exhibiting advertisements when placed within 100 yards of a park, open space, or public pleasure promenade may be prohibited. If such hoardings, &c., were in existence prior to the making of these by-laws, then they can only be removed at the end of five years.

An instance of disagreeable advertisement.—While it is quite easy to understand that many present-day advertisements may offend the æsthetic tastes of certain sections of the community, it is rather difficult to realise that they may also have a bad effect upon their health. A few years ago an enterprising local undertaker secured a site overlooking the main entrance to one of the most popular open spaces in this city and erected thereon a large notice-board, upon which were set forth his various charges for carrying out funeral arrangements. To an ordinarily healthy mortal an undertaker's notice has no more significance than any other tradesman's and he may pass it many times a day and be quite oblivious to its presence. It would appear, however, that this is not the case with invalids, for a number of these who frequented the open space in question made representations to the Parks Committee to get this obnoxious advertisement removed, as it had a most depressing effect upon their spirits. These representations were so persistent and strong that the committee were compelled to negotiate with the undertaker, who after much trouble was prevailed upon to remove his board elsewhere. Under the new Act such an advertisement could have been prohibited, provided advantage had been taken of it to draw up the necessary by-laws.

Legality of by-laws.—Needless to say, before any by-laws of this description can be enforced they must be approved by the Secretary of State.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Raspberries.—Examine the canes, and if any are found to have been damaged by frost, cut them back to a plump bud. All the canes that have been planted this season should be pruned during the present month, according to the directions given in a former Calendar. Place one foot immediately over the root of the plant before cutting the growths to prevent the roots from being loosened, and be careful to use a sharp knife for the pruning. The autumn-fruiting Raspberries should also be pruned according to previous directions, taking care to prevent any crowding of the growths. Later, when the plants have commenced to grow, occasional applications of liquid manure water will greatly assist them.

Raspberry-Strawberry.—If it is desired to increase the stock of this plant, the clumps may be divided during the present month. They in-

crease very quickly, spreading over the ground in a very similar manner to the garden Mint. The permanent plants need to be checked with the spade occasionally in order to keep them within bounds. The fruit is borne on canes made during the current season, therefore the practice is to cut the old canes close to the ground as soon as the foliage has fallen in autumn. The brightly-coloured berries are very ornamental and tempting to the eye, but they are most insipid to the taste, and birds even do not appear to have much liking for them. The plants will grow in any poor soil, and the fruits commence to ripen early in September and continue until prevented by frost. If planted in clumps in front of a shrubbery, the bright scarlet berries afford a pleasing contrast to the changing tints in the foliage in autumn.

General work.—The better weather experienced

during the past fortnight has been favourable to the completing of fruit-tree planting. It has also been possible to use the hoe frequently in the fruit quarters for preventing weeds. Examine recently-planted trees, especially those which were planted in autumn, for, owing to the strong gales and the wet condition of the ground during winter, they may have become loosened at the collar. When the soil is in a dry state it should be made quite firm by treading with one foot around the collar of each tree. Examine all the supports and make sure that the bark of the trees is not suffering damage by rubbing. Prepare the net which will be wanted presently for protecting fruit and fruit-tree blossom, and mend those that are worth this trouble. If any new ones have to be purchased, the order should be sent as soon as possible, that they may be at hand when required for use.



FIG. 78.—VIEW IN THE R.H.S. HALL EARLY ON MARCH 8 BEFORE MANY VISITORS WERE PRESENT.



[From photographs by W. J. Vasey.]

FIG. 79.—SCENE IN R.H.S. HALL ON SAME DAY AT 3 P.M.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 22—

Roy. Hort. Soc. Coms. meet. (Fourth Masters' Memorial Lecture at 3 p.m., by Mr. A. D. Hall, on "The Adaptation of the Plant to the Soil.")

WEDNESDAY, MARCH 23—

Exh. of Vegetables and Fruits (intensive cultivation), arranged by the Stour Valley Gardening School, at R.H.S. Hall. (Lecture at 3 p.m. by Mr. E. O'Sullivan on "Intensive Culture.")

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—42.8°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, March 16 (6 P.M.): Max. 54°; Min. 31°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 17 (10 A.M.): Bar. 29.9; Temp. 51°; Weather—Sunshine.

PROVINCES.—Wednesday, March 16: Max. 49° England and Ireland, S.; Min. 45° Lincolnshire.

SALES FOR THE ENSUING WEEK.

MONDAY—

Clearance Sale of Specimen and other Palms, Greenhouse Plants, Ferns, &c., at Dicksons' Nurseries, Upper Tulse Hill, S.W., by Protheroe & Morris, at 12 o'clock; Perennials and Border Plants, Lilliums and Hardy Bulbs, at 12; Roses, Fruit Trees, Azaleas, &c., at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

Herbaceous and other Plants, Hardy Bulbs and Roots, at 12; Trade Sale of Miscellaneous Plants and Bulbs, at 12; 6,000 Roses, also Fruit Trees, at 1.30; Japanese Lilliums in cases as received, at 2; Palms and Plants, Ferns, &c., at 5, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The R.H.S. Meetings.

Judging by the crowds of visitors at the last meeting at the Horticultural Hall, Westminster, and the probability that similar conditions will continue for the next few months, it is obvious that the Council has to face a serious problem. Notwithstanding the fact that last week's meeting remained open for two days, this circumstance had no effect in mitigating the crowding on Tuesday. An effort was made during the afternoon to relieve the pressure at the entrance—where the incoming stream had to meet the outgoing stream—by allowing visitors to leave by the exit at the lower end of the hall; but, nevertheless, comparatively few seemed to use these doors. One cause of the congestion lies in the tendency on the part of Fellows to stop and talk, thus blocking the gangways. Another is that, owing to the demand for exhibition space, the tables are set too close to one another. Visitors press each other in every direction, and circulation becomes impossible. If visitors were required to move in one direction it would assist locomotion; but Fellows would probably resent any interference with a view to enforcing such discipline, preferring to enjoy themselves in their own way, and we have much sympathy with them in the matter. These

Tuesday meetings are not merely spectacular displays to be walked through to the beat of a constable's drill; indeed, if serious horticulturists are to get the best possible results from the shows, they must be allowed to go their own pace, and have time for note-taking and questioning. It will be said the Hall should have been larger. This is all very well, but it may be pointed out that the building answers all requirements for some nine months of the year, and the excessive crowding only occurs at the spring shows. When the plans for the magnificent Hall were accepted, few people thought the Society would so soon have a Fellowship exceeding 11,000.

In order that readers at a distance may have an opportunity of seeing something of the character of the last meeting, we reproduce photographs on another page which show, in one instance, the Hall as it appeared when few visitors were present, and, in the other case, the conditions which prevailed at three o'clock in the afternoon.

If horticulture, including fruit-growing, is to obtain its proper share of the money available in the Development and Road Improvement Funds, it will

be necessary for those who are specially interested in that branch of enterprise to put their claims before the administrators of the Funds. Of the £500,000 a year voted for development, one-half has been promised by the Chancellor of the Exchequer to agriculture, which, of course, includes horticulture. The chief, central agricultural associations have arranged to co-operate on behalf of their industry; but the claims of horticulture will not be properly represented in their councils unless the Royal Horticultural Society and the Fruit Growers' Federation, and possibly other bodies, are associated with them in their deliberations. It is to be hoped that arrangements will be made in order to secure the representation of the claims of horticulture to a substantial allocation from the Development Fund.

The great danger to be guarded against is the frittering away of the funds on a multiplicity of objects. Even £250,000 a year for agricultural development throughout the whole of the United Kingdom will not achieve any substantial results if spread over all the items named in the Act which have reference to that industry. Thirteen agricultural objects are named, and it is further provided that "any other means which appear calculated to develop agriculture and rural industries" may be adopted. Apart from the unlimited scope thus allowed for expending the funds in useless, or almost useless, dribbles, a little consideration will show that even the specified objects are too numerous for the funds available. They are agricultural research, education, experiments, the organisation of co-operation, instruction in the marketing of produce, the extension of the provision of small holdings, the purchase and planting of land for forestry, instruction and experiment in forestry, the reclamation of land, drainage, and the improvement of rural transport.

Agricultural education is to include the foundation and maintenance of farm institutes, and the improvement of rural trans-

port covers the construction of light railways. The latter is a highly desirable object, but far too costly to be properly included. As to the extension of provision for small holdings, there is no need to come upon the Development Fund for that purpose, as there are ample means available under the Small Holdings Act.

By far the most urgent needs of agriculture, including horticulture, are research and experiments. There are insect and fungus pests injurious to outdoor fruit and hothouse plants, of which even the life histories are not fully known, whilst the best methods of treating them are equally obscure. Knowledge concerning spraying is in only a crudely empirical stage, and the investigation of the science of spraying materials is in its beginning, Mr. Spencer Pickering being the only authority, at least in this country, who has devoted any considerable amount of research to it. Then there are numerous problems relating to the planting, pruning, and manuring of fruit trees which require elucidation. What is being done at Woburn Experimental Fruit Farm, and a great deal more besides, should be done at a dozen other stations in different parts of the country.

Equally urgent is an official agency for affording information and advice to growers of fruit and plants who send inquiries relating to injurious insects or diseases. At present there is no properly-equipped official agency of the kind. The Intelligence Division of the Board of Agriculture does its best to answer inquiries; but it has not on its staff either an entomologist or a mycologist, and, therefore, questions and specimens have to be sent to some outside authority involving long delay—so long in some instances that the senders have forgotten all about their enquiries and the diseased plants are dead and gone before the answers reach them. Seeing that immediate treatment may be necessary to meet insect or fungus attacks, it is obvious that promptness, as well as fullness of reply, is of great importance.

As the foundation of arrangements for meeting the needs of horticulture, a Horticultural Division of the Board of Agriculture should be established, fully provided with specialists and equipment. Further, in connection with every agricultural or horticultural college, on the staff of which there are an entomologist and a mycologist, an experimental fruit station should be established, and financial help should be given to these specialists to carry on research work, as well as experiments, out-of-doors, in hothouses, and in the college laboratories. Most of the colleges have farms attached to them, and portions of the land could be devoted to fruit growing and other horticultural experiments.

It is hardly necessary to state that the experts entrusted with the work of investigation must include men who have had a practical as well as a scientific training. In connection with the experiment stations, lectures on horticultural subjects should be organised in their several districts, and demonstrations in such arts as those of pruning, spraying, and fruit packing might be given at the stations or on fruit farms outside. In the colleges, too, there might be special courses of instruction in fruit growing and other horticultural subjects.

It is a pitiable fact that, at present, though

the total sums expended on the development of scientific agriculture and horticulture are not inconsiderable, there is not one single adequately-endowed or staffed institution in this country. The men engaged in these institutions are often able men, but their efforts are crippled by lack of funds, lack of buildings and lack of equipment. Research at its best is a slow business; at its worst—that is, as it is now situated—it amounts to little more than nothing. A wise allocation of the Development Grant to a few objects should contribute in no small measure to remedy the present deplorable state of affairs.

It is suggested that a conference to discuss the whole subject of horticulture in relation to the Development Grant should be arranged without delay.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place on Tuesday, March 22, at 3 p.m. The fourth Masters Memorial lecture on "The Adaptation of the Plant to the Soil" will be delivered by Mr. A. D. HALL, M.A., F.R.S.

ROYAL INSTITUTION.—Among the lectures announced to take place at the Royal Institution after Easter are three by Dr. D. H. SCOTT on "The World of Plants before the Appearance of Flowers."

ROYAL HORTICULTURAL SOCIETY OF IRELAND.—The schedule of arrangements for 1910 includes a spring flower show, to be held in the Arts Industries Hall, Ballsbridge, on Wednesday and Thursday, April 20-21. The show will be held in conjunction with the Royal Dublin Society's spring exhibition. Besides numerous classes for bulbous plants, there are also several for Roses, the most valuable prize in the schedule being offered for nine pot plants of Roses. A challenge cup of the value of £10 accompanies that for a display of foliage or flowering plants, artistically arranged. The summer show will be held on Wednesday, July 6, but the place has not yet been decided upon. Roses will be a special feature, 15 classes being provided for this flower. An autumn exhibition is fixed for August 25; at this no fewer than eighteen classes are provided for Sweet Peas, and other features will be Carnations, Dahlias, and fruit. The schedule can be obtained from the Secretary Mr. E. KNOWLDIN, 5, Molesworth Street, Dublin.

FLOWERS IN SEASON.—Some choice Violets of the comparatively new variety Mrs. Arthur have been sent us by Mr. L. E. WALKER, Barton Hall Gardens, Bury St. Edmunds. This kind is of the same type as the old Marie Louise, but it has a richer colour, due to a mingling of mauve in the blue petals. The blooms are deliciously fragrant, and very large. Mr. WALKER states: "It is a much stronger grower than Marie Louise, and throws its blooms, which are borne on thick stems, well above the foliage. The plants flower both early and late in the season, and for quantity and quality of bloom the variety is hard to surpass."

CARDIFF TROUT HATCHERIES.—Mr. W. W. PETTIGREW recently reported to the Cardiff Parks Committee that 2,600 yearling trout from the hatcheries at Roath Park were sold last year at £8 70s. per 1,000, and that he had orders for double that number for this year. Councillor MANDER said he saw no reason why they could not rear 120,000 young trout annually. It was resolved that Mr. PETTIGREW be asked to report as to the possibility of enlarging the rearing grounds.

WOLVERHAMPTON FLORAL FETE will again be held in the West Park, Wolverhampton, the dates being July 12, 13, 14. The flower show ranks amongst the most important in the country, and beside cups and medals, cash prizes, to the value of nearly £900, are offered in the 115 classes which comprise the schedule. Everything points to continued success, and no fewer than 10 new classes are provided for, including an important one for a rock and water-garden exhibit, with prizes to the value of £50, including a 1st prize of £21. Another important addition is a competition for a collection of 10 dishes of fruit in not fewer than seven kinds, with a 1st prize of £8, followed by £5, £3, and £2. A sum of £40 is offered as the 1st prize for a display of miscellaneous plants, in or out of bloom, and flowers; altogether the sum of £100 is offered as prizes in this class. Very liberal prizes are also offered for Ferns, collections of plants, Roses, Carnations, and Sweet Peas. The decorative classes are numerous and varied, with substantial prizes. The list of donors of special prizes includes the MAYOR of WOLVERHAMPTON, many local gentlemen, and seed firms. The schedule may be had from the secretary, Mr. WILLIAM E. BARNETT, Snow Hill, Wolverhampton.

EUCALYPTUS CORDATA.—By an inadvertence Mr. MORGAN's name appeared on the Supplementary plate last week as the owner of Porthgwynn, instead of Lt.-Col. the Hon. H. F. TREFUSIS. Mr. MORGAN is head gardener there, as was pointed out in the paragraph on p. 168.

THE JAPAN-BRITISH EXHIBITION.—We are informed that the Japanese gardens at the Shepherd's Bush Exhibition are beginning to assume an attractive appearance. A large portion of the available land for British horticulturists has already been let, but nurserymen and seedsmen can still obtain plots. The plans and arrangements can be obtained by application to the Administration Offices, Wood Lane, Shepherd's Bush. In most respects they follow the precedents of the Franco-British Exhibition of 1908.

APPOINTMENTS.—The following appointments are announced in the *Kew Bulletin* (No. 2, 1910):—Miss E. M. WAKEFIELD, late of the School of Rural Economy, Oxford, to the post of assistant in the Royal Botanic Gardens, Kew. Mr. THOMAS DOUGLAS MAITLAND, a member of the gardening staff of the Royal Botanic Gardens, as Curator in the Agricultural Department of Southern Nigeria.

MR. ARTHUR HERRINGTON has resigned his position as superintendent and landscape gardener at Florham, U.S.A., the estate of the late H. McK. TWOMBLY, which position he has held for 14 years. On April 1 he will commence business as a landscape gardener. Mr. HERRINGTON will be remembered in this country as gardener at Gravetye, and later as a member of the editorial staff of *The Garden*.

PRESENTATION TO MR. JAMES W. LAIRD.—The many friends of this well-known Dundee nurseryman, a member of the firm of Messrs. LAIRD & SINCLAIR, LTD., assembled on March 4 to pay him honour and present him with parting gifts on his leaving for Virginia, which he intends making his future home. Mr. W. S. MELVILLE, J.P., president of the Dundee Horticultural and Dundee Chrysanthemum Societies, occupied the chair. The company included the leading nurserymen, seedsmen, and gardeners of the district. During the evening the chairman called upon WILLIAM GRANT as one of Mr. LAIRD's oldest associates to present him with their gifts, and with an appropriate address Mr. GRANT

handed Mr. LAIRD a gold watch and chain and a purse of sovereigns. The watch bore the following inscription: "To Mr. JAMES W. LAIRD from his horticultural friends as a mark of esteem on his leaving for America. Dundee, March 4, 1910." Mrs. LAIRD was also given a gold watch. Mr. LAIRD is the second son of the late Mr. R. B. LAIRD, of DOWNIE & LAIRD, Edinburgh; DOWNIE, LAIRD & LAING, London; and LAIRD & SINCLAIR, Dundee, who was well known in the horticultural world. As a boy "JEM" (as his intimate friends elected to call him) served his apprenticeship in the Edinburgh nurseries of the firm, afterwards going south to Sheffield, where he remained for two years in the Handsworth nurseries of Messrs. FISHER, SON & SIBRAY. In 1878 he again joined the old firm, this time in Dundee. After five years, in 1883 he set sail for Australia, where he remained for two years. After returning home he assumed the managership of the firm's nurseries at Monifieth, a position he has held up to the present time.

MR. WILLIAM DENNING.—The many friends of Mr. WM. DENNING, florist, Hampton, who, for many years, was gardener to the Earl of LONDENBOROUGH, Kingston Hill, will learn with regret that this well-known gardener is lying seriously ill at his Hampton residence. Mr. DENNING is known locally as one of the most energetic members of the Urban District Council, and near the close of an important meeting of that body on the 8th inst. it was noted that he was ill. Medical aid being at once summoned, it was found that he was suffering from a paralytic seizure, his condition being so serious that he was detained at the Council's offices during the night. Early on the following morning Mr. DENNING was removed to his home in a still unconscious condition. A slight improvement is reported, but he has not yet regained his speech.

THE FLOWERING OF THE ALMOND.—The state of vegetation at the present season is illustrated by the flowering of the Almond trees in the London district. The first flowers on a tree situated in a favourable position in Wandsworth, five miles south-west of London, expanded fully on March 12. Previous dates for the same tree are: April 1 last year; March 23 in 1908; March 20, 1907; February 28, 1906; March 7, 1905; and March 21, 1904.

GERMINATION OF SWEET PEAS.—We hear many complaints about the germination of Sweet Peas this spring, but after the exceptionally bad weather at harvesting time last year such are not to be wondered at. One large grower reports that while whites, creams, lavenders and orange-coloured varieties are very bad, all the pinks, cream-pinks, reds and blues have come well. It is certainly very disappointing to get only six or 12 plants instead of 20 or 30, but nowadays the difficulty is got over by giving the smaller number extra care and attention. They are grown on under glass and planted out perhaps 2 feet apart, and much better results are obtained than if 50 seeds were crowded into the 2 feet space as was the custom not so long ago.

BEGONIA GLOIRE DE LORRAINE.—The variety "Peterson's Glory of Cincinnati" is looked upon in the States as a sterling novelty. It is said to last longer in the dwelling than any other Begonia, its flowers are of a beautiful soft, satiny-pink; they are larger than those of Gloire de Lorraine. The variety is readily propagated, is a robust grower, and it blooms from October to April. The Lonsdale variety of G. de Lorraine is also largely grown in the States, because it seems to be better able to withstand the air of the dwelling, than the type.

STATE FORESTRY IN INDIA.—Mr. SAINT-HILL EARDLEY-WILMOT, C.I.E., recently contributed before the Indian section of the Royal Society of Arts, a paper on "Indian State Forestry." Mr. EARDLEY-WILMOT has recently retired from the Imperial Forest Department of India, after reaching the highest post in the service, that of Inspector-General. The paper was read by Mr. E. P. STEBBING, of the same service, who is at present on leave from India. Sir WILLIAM LEE-WARNER presided. According to *The Times*, Mr. EARDLEY-WILMOT stated, in the course of his paper, that the area now under the control of the Indian Forest Department was 240,000 square miles, representing about a fifth part of British India. The Forest Department would have liked the wooded area so distributed that its produce would have been easily accessible to all its inhabitants, but they arrived too late; mankind had been warring against the forest with fire and axe thousands of years before their time, and the department had saved what was left. The total income from the forests of British India in 1906-7 was £1,776,000, and a net profit of £839,000 accrued to the State. The influence of the forest began immediately below the snow-line at about 16,000 feet elevation. First came the upland meadows, next the shrubby growth of Juniper and Alpine Rose, and afterwards the Birch and Firs; below these appeared the forests of Oak and Rhododendron, Cedar, and Pine, and further down the forests of long-leaved Pine, which yielded good timber and much resin; and the submontane forests at still lower elevations contained the most valuable timber, such as "sál," teak, ironwood, sandal, rosewood, red sanders, and ebony. Lastly, across the Bay of Bengal there were the primeval forests, where ocean currents had brought the seeds of exotic trees to flourish on the island shores. With the exception of teak, sandal, and a few ornamental woods practically the whole of the timber output was consumed in India itself. The agricultural population needed the wood and Bamboos of the forests for their carts and ploughs; the timber and grass for their houses and sheds; fibre for their ropes; reeds for their mats; bark for tanning; leaves for thatching and manuring; dyes, gums, resins, and oils for various domestic purposes; fruits, flowers, and roots for food and alcoholic drinks. In short, the people were beginning to realise that the forest in its regulated form was no longer, as of old, the enemy of man, and that they could not do without its produce. The indirect benefits of the forest were even greater. The trees formed barriers against avalanches, they prevented erosion of the soil by the torrents, and at some future time, when the importance of water storage in the soil was properly realised, we should no doubt reckon the cost of more fully utilising a portion of the large forest area for the purpose for which it was designed by Nature. With regard to the recruitment of the Imperial Forest Service, between 1869 and 1881 its officers studied their profession in France and Germany, but now the University of Oxford had been entrusted with their probationary training.

THE INTERNATIONAL CONGRESS OF BOTANY.

—The third International Congress of Botany will be held in Brussels on May 12-22. The section which deals with systematic nomenclature will consider questions of a general character, and also matters bearing on the nomenclature of the non-viscous cryptogams and of fossil plants. Of the four members of the "permanent bureau of nomenclature" this country supplies one in the person of Dr. A. B. RENDLE, while Messrs. G. MASSEE (Kew) and E. SALMON are members of the international commission for the nomenclature of cryptogamic plants. The names of delegates appointed to attend the Congress must reach the general secretary, Dr. DE WILDEMAN, Jardin Botanique, Brussels, not later than May 1.

FOXHILL.

(See Supplementary Illustration.)

THIS estate of about 30 acres lies about a mile to the south-east of Reading. It came into the possession of Mr. Rufus Isaacs, K.C., M.P., about four years ago, and now the distinguished lawyer and Solicitor-General, like many other busy men, seeks recreation in developing and beautifying the garden.

Enthusiastic gardeners soon reveal their predilections in the garden, and at Foxhill pride of place is given to the Rose. There are Roses everywhere—Teas, Hybrid Tea, Hybrid Perpetual, China and Polyantha Roses, varieties of Wichuraiana, rugosa and Sweet Briar, in endless profusion.

The Rose garden proper was designed by Messrs. W. Paul & Son three years ago, and the trees have thriven extremely well. Some of the beds are planted entirely with one kind, whilst others are planted with shades of pink and red.

All the older, favourite kinds are represented, as well as many of the newer and less-known Roses. Caroline Testout, Mme. Abel Chatenay, Mme. Ravary, Lady Waterlow, Grace Darling, G. Nabonnand, and Betty were noticed among the Tea scented varieties. Hybrid Teas include Lady Gay, Dorothy Perkins, and Alberic Barbier, and are used as festoons encircling the garden, whilst the whole area is broken up by pillars of similar kinds. Trailing varieties may be seen on tall standards, and there is a hedge of Sweet Briars and a pagoda exclusively covered with Roses.

Below the terrace the lawn slopes smoothly down to the edge of the lake, which divides the property from White Knights Park. A good view of the lake is obtained from the terrace.

Hardy plants are grown extensively, long borders being filled with choice, herbaceous plants edged with white Pinks, Saxifragas, Alpine Phlox, and other dwarf species.

At intervals, along the back of the border. Roses and Clematis, trained to Larch poles, add to the effect.

Spring bulbs are naturalised in the grass and also under trees where little else would thrive.

The beds are filled with annuals, biennials and bulbs in spring and summer, for there is little of the more formal kind of bedding. In the spring, Primroses, Forget-me-nots, Pansies, and Wallflowers are the principal occupants, and, in the summer, these are replaced by Stocks, Antirrhinums, Pentstemons, and similar plants.

The planting operations of the Churchills, who originally owned the whole of White Knights, of which estate Foxhill was once a part—appear not to have extended as far as this part, for, unlike White Knights, which possesses good examples of choice trees, the gardens at Foxhill have few trees of interest, though two trees of the blue Cedar (*Cedrus atlantica glauca*) are striking exceptions to this general rule.

The glasshouses are neither extensive nor modern, but a good number of pot plants are grown for furnishing the large conservatory attached to the house. In the latter building there were recently exceptionally fine baskets of Asparagus Sprengeri.

Large numbers of bulbs are forced for flowering in spring, while Schizanthi, Fuchsias, Campanulas, and Chrysanthemums are cultivated in numbers.

The walled kitchen garden encloses about 1½ acres, and is separated from the remainder of the garden by the high road.

Neither the soil nor site is the best that could be wished for fruit and vegetable culture. The land slopes to the north, and the soil is a thin loam overlying strong London clay. The garden is approached by a straight path flanked by borders of hardy flowers, and backed by short standard Pears. Nearly all the fruit trees are of considerable age, but thinning has brought about great improvements in their condition. They have been allowed to extend their growths,

and these in most cases are now well set with fruit-buds. In spite of the dulness of the summer of 1909, the wood of the Peaches on the south walls was most promising, and the crops distinctly good.

In the frame-yard Violets are successfully grown on beds of leaves, the blooms being very fine, and the plants free from disease. These flowers are great favourites.

The general condition of the garden reflects credit on those responsible, particularly as some of the work is carried out under great difficulties. F. G. D.

FRUIT PRODUCTION OF THE BRITISH EMPIRE.*

(Continued from page 165.)

INDIA.

ALTHOUGH it is not possible to obtain detailed figures as to the production of fruit in India, some remarkable statistics are furnished as to the acreage under orchard and garden crops in the various provinces. Eastern Bengal and Assam head the list with over a million acres; then Madras, with close on a million. Bengal has three-quarters of a million, the United Provinces nearly half a million, and Burma four hundred thousand; these Provinces between them account for 3,582,148 out of 4,020,136 acres, the total acreage under such crops in India.

The figures for India are, perhaps, somewhat misleading, including as they do the acreage under garden crops, of which detailed statistics are not available. Garden crops include vegetables, &c., produced by natives, not only for their own use, but for market purposes. The large number of Europeans resident in India, both for military and civil purposes, has fostered an industry in European vegetables which could hardly have existed, and certainly could not have flourished, before the advent of the British race. The excellence of English vegetables now obtainable in large quantities says much for the efficiency of the native gardeners, and such products as the Potato, Turnip, Radish, and even Cabbage are readily obtainable for the table. The market-gardens and those supplying the natives' wants in this direction would probably account for a large portion of the area under fruit and garden crops. India, with its varied altitudes, soils and climates, is able to produce almost any fruit grown in other parts of the world. In the hills are to be found such temperate fruits as the Apple, Pear, Apricot, Peach, &c., which are grown extensively, and give rise to an important trade from Kashmir and elsewhere. In warmer districts, Almonds, Limes, Oranges, and Lemons are widely cultivated; and tropical varieties such as the Guava, Pomegranate, Banana, Pineapple, Coconut, &c., flourish in the plains and in Southern India. If it were possible to obtain figures on the subject, it would probably be found that the Mango is the most widely-cultivated fruit. At certain times in the year it forms the staple food for millions of natives, and its wide use for many such purposes as chutneys, curries, preserves, &c., must cause the consumption of enormous quantities. The Mango plays, and has played for many centuries, an important part in the dietetic history of India, so much so that it is involved in the ancient mythology of the country.

CEYLON.

In 1908 Ceylon had 100,765 acres in fruit gardens, but no figures are yet available as to the quantity of fruit produced. Probably a large percentage of the produce is raised for the personal use of the natives. The Coconut Palm is largely cultivated, 915,373 acres being under the Palm. The importance of this branch of the fruit industry may be gauged by the fact that in 1907 the value of the export of Coconut Palm products was £1,738,523.

JAMAICA.

Fruit forms now one of the principal items of export from this island. The export of Oranges in 1907-8 was valued at £77,105, and that of

* Extracts from a paper by Dr. Jno. McCall, Agent-General for Tasmania, read before the Royal Society of Arts on March 1.

Bananas at £1,038,721. The same year the area under Banana cultivation was 62,164 acres. There can be no more striking example of the value of a Government subsidy wisely conferred than the case of Jamaica. A few years ago the country was in a most deplorable state of depression; but the subsidy of £40,000 a year granted jointly by the Imperial and Jamaica Governments enabled the Imperial Direct West India mail service to maintain a fortnightly steam communication with this country, undertaking to bring here 20,000 bunches of Bananas by each steamer. The wisdom of this policy is amply proved by the enormous expansion of the industry, the export value being now, as I have shown, over a million sterling. The benefits to the inhabitants of these islands, too, must not be overlooked. A nourishing article of diet is placed on the market in such quantities and prices that enable the poorer classes to be consumers.

Fruit-growing in the other West Indian Islands is but little carried on, and figures regarding the industry are not obtainable. That some fruit is grown there goes without saying; but, with the exception of Montserrat, where there are about 1,000 acres under Limes, it would appear that the industry is not on a commercial basis.

(To be continued.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

MR. C. BOGUE LUFFMANN AND FRUIT-TREE CULTURE.—Mr. Luffmann concludes his rejoinder to my letter, on p. 156, by declaring that:

"If the working gardener and fruit-grower have not found my writings obscure or impracticable, I shall be satisfied, for I do not look beyond their wants."

It was as "a working gardener and fruit-grower" myself that I felt called upon to utter a protest at the extravagance of his assertions, and incidentally at the obscurity of his language (as, at any rate, they appeared to me), and I fail to see that his reply has, in any way, cleared him of the accusation. In answer to my objection that his assertions were not supported by a statement of the reasons that led him to maintain them, he replies that he feels that he has crowded his articles with reasons. Then I say that these reasons, so-called, are themselves mere assertions, in support of which he has advanced no statement of facts. He complains that I ask for a book where he is limited to giving a few hints on as many inches of space. That is true enough, perhaps, and I propose, therefore, to press him to enlighten us with regard to one only of his statements, or "reasons." I referred, on p. 156, to his assertion that:

"Roots made when a tree has young, half-grown, mature, or no leaves, are all of different characters and values."

I enquired if he had examined roots in all these stages. To this he replies "Yes, and in large numbers." I want him now to amplify his reply by telling us how he conducted these examinations of organs buried beneath the soil. Further, I asked him to state facts, gained from these examinations, that go to show that his conclusions are reliable; his reply to this is "I repeat it as incontrovertible and demonstrable fact." Let him now tell us how he demonstrates the facts. I am amused at Mr. Luffmann's complaint that I accuse him of "arguing." Where? I fully concur with him in his rejoinder that he does not argue; I had thought that to be the whole burden of my complaint! He objects to my "ordering" him to conform to "generally-accepted" physiological teaching, in advancing views on horticultural practice. By "generally-accepted," I of course meant teaching, the truth of which was reasonably demonstrable, as opposed to teaching such as your contributor's appeared to me, in support of which no sort of evidence is advanced. Mr. Luffmann goes on to enquire:

"Is this the utterance of an unbiased student of Nature and a servant of his fellow-men?"

The latter part of the question seems too inconsequent to require an answer, but, in reply to the former, I certainly am biased in favour of a truthful interpretation of Nature, and it is on this account that I have ventured to question Mr. Luffmann's statements on the behaviour of fruit-trees. We gardeners are as sceptical as the rest

of humanity, and have a right to assure ourselves of the soundness of all precepts advanced with the purpose of influencing our methods of practice. It is no answer to this objection to say, as does your correspondent:

"I may be wrong, and if proved so, will admit as much," since the onus of proof is with him who advances opinions at variance with such as are generally maintained. But, be his opinions ever so correct, I fail utterly to grasp in what way he advises their application to practice. Taking, for instance, his article on "The Roots of Fruit-trees" (p. 65), I think I am right in supposing that the whole consists of "reasons" that should influence us "before deciding on any form of root-pruning or soil dressing." But not one word is forthcoming as to how this knowledge is to influence our practice. I do not doubt Mr. Luffmann's credentials as a "successful tree-culturist," but in "the jealous warfare between science and practice," let him at least take fair side with the latter and confine his teachings within cultural limits. "The outdoor fruit-trees of these islands," says Mr. Luffmann, "are scandalously mismanaged," and he adds, truly enough, "the purely scientific men are incapable of putting them straight." But this is no argument in favour of attempting to influence the poor ignorant growers by means of assertions that until substantiated, can only be described as pseudo-scientific; and by stating them in a manner so disjointed as to leave us utterly in the dark as to how they might be assimilated to practice. A. A. P.

PRUNING OF YOUNG VINES.—Mr. Ward says "I did hear that my immediate successor at Longford had uprooted the vines in one 'mixed' house to make room for Fig trees." This was quite true, but it will be another piece of news for Mr. Ward to learn that not only "one" "mixed" house was uprooted, but as many as six vineries were replanted, and all because they were exhausted. Mr. Ward says he still objects to my method of pruning, owing to waste of time, labour, and consequent loss of crop. I wonder what is the loss of crop, time, etc., from my method as compared with the necessity of renewing the vines in such a short space of time as was found to be an absolute necessity in the case of the Longford vines? I have no proof that a second lot of vines would not also require renewal if treated on the same lines as advocated by Mr. Ward. With reference to the quotation which Mr. Ward makes from Mr. W. Taylor's note, p. 69, I note the writer there says: "I agree with most of what Mr. Molyneux says." Mr. Ward does not give us the context! Mr. Taylor is, no doubt, an excellent cultivator, but that does not alter my position in regard to the advice I have to give the amateur Grape cultivator who wishes not to have the trouble of renewing his vines after only a few years' cultivation. I believe the vines established at Clovenfords by the late Mr. W. Thomson (it must be more than 30 years ago, though I write from memory) look to-day as promising as they ever did. E. Molyneux. [This correspondence will now cease.—Eds.]

THE N.C.S. TRIAL OF SINGLE CHRYSANTHEMUMS (see p. 153).—These trials will be a boon to many do not know which are the best in the various sections, though single-flowered varieties increase so rapidly that too many sorts are sure to be given a trial. There is no doubt whatever of the importance of the section as an aid to floral decoration, and especially to the amateur cultivator, who naturally requires a good return for his labour. It is well that some authoritative body should take the matter in hand to decide which are really good varieties and which are not required, because there is such a wide difference of opinion as to what constitutes a desirable variety. Speaking broadly, I do not think raisers are the best people for this purpose; they are too apt to see superiority in their progeny when it is not sufficient to impress an outsider. Few persons can agree whether there should be one or more rows of florets, whether they should be narrow or wide, cup-shaped or reflexed, large or small blooms, early or late flowering; in fact, there is really no unanimity on the subject; therefore, I welcome the project, but I do not envy the growers. There is no doubt that the variety Mary Anderson has done more to popularise the section than any other variety. It was intro-

duced by Teesdale in 1885. Some of the finest specimen plants and blooms of Mary Anderson ever seen were staged at the Birmingham Chrysanthemum Shows, which were among the leading meetings at that time. Seeing this handsome variety there, many growers were inspired to a desire to grow similar ones. It would be extremely difficult to know how many varieties have been raised since those days: not far short of one thousand, I venture to say. Unfortunately many inferior varieties have been allowed to take the place of others of better quality, although, naturally, many present-day sorts are excellent. Last season's introductions seem to foreshadow a new era with sorts like Mensa (pure white), Sir Walter Scott (rich yellow), and Aurora Borealis (crimson). The blooms are large, with bold, semi-drooping florets, not merely a single row of floret, nor so many as to prohibit their being classed as singles. I do not approve the September and October-flowering varieties out-of-doors; they are not equal to the early Japanese section. In the open the singles have a "flimsy" appearance, and too many have their florets cup-shaped, which is not graceful. I think this type nearly superfluous, as the ordinary herbaceous border will supply flowers at that period with the addition of the early-flowering and Japanese sorts. I notice one firm alone catalogues over 80 of these early-flowering singles. It is during the months of November, December, and January that single-flowered sorts are especially prized, and for the latter two months few sorts are needed, for what is required at that time is a quantity of blossom of distinctive colours rather than a variety of colour. This massing of one or more colours is in the spirit of the age, and caterers have to provide it. E. Molyneux.

POLYGONUM CAPITATUM.—I was surprised not to see this species mentioned in the article on Polygonums that appeared on page 123, for it is a lovely little plant and one that compares favourably with the best of the dwarf forms of the genus. The species is a native of the Himalayas, where it is found from Chamba to Bhotan at an elevation of from 3,000 to 6,000 feet. It cannot be considered hardy in this country, and is often killed in the winter. Probably on that account it has been classed as an annual by some writers, but it is a true perennial, and, by affording winter protection, I have kept a plant alive for several years. It is the most persistent flowerer of its family. My plant has already expanded blossoms, and will continue to bloom through the spring, summer and autumn until November. Self-sown seedlings are continually appearing around the plant, and I have taken up dozens of them. It is a very charming Polygonum, forming a cushion of foliage studded with a profusion of round heads of bright, rose-pink flowers. The oval leaves, 1 inch to 2 inches long, are dark green, and are marked with a red, V-shaped band extending from the mid-rib at the centre to the base of the leaf. Their stems are red, and covered with minute crimson hairs. Borne on long stalks well above the foliage, the flower-heads are produced in abundance at the axils of the upper leaves. Most Polygonums are such robust growers that they can only be admitted into the roughest parts of the garden, but this species is of very neat, prostrate habit, and does not spread unduly. It is a useful plant for covering the bare ground beneath taller-growing subjects, as it is always beautiful, remaining in bloom for many months. In general habit it comes nearest to *P. vacciniifolium*, but the leaves are larger and softer. In *Flora and Sylva*, it was said, "As a basket or hanging plant for the greenhouse, and to cover bare ground beneath stages or in a winter garden, there are few plants that would give so good a result with so little trouble." Wyndham Fitzherbert. *Kin'sweir*.

—Although a charming little plant in places where it flourishes, *P. capitatum* can hardly be considered among the most useful members of the genus for general garden purposes, but those mentioned in the article were selected from that point of view. The article did not profess to deal with all species of Polygonum in cultivation. There is the native *P. bistorta*, an attractive plant for the wild garden, and among the climbing species *P. cilioides* and *P. multiflorum* are useful plants for covering trellis-work and such-like places in summer W. I.

THE BRENT VALLEY BIRD SANCTUARY.—On behalf of the members of the Brent Valley Bird Sanctuary Committee, I appeal, now that the nesting season will soon be in full swing, for renewals of, and additions to, the contributions that have enabled us to maintain the sanctuary in the past. We shall be pleased to enter the name of any subscriber of 1s. 6d. against a nesting box in our numbered list, and report as to the result obtained, while, in the case of those who contribute 5s. and upwards we shall be glad to make arrangements for a visit to the sanctuary. *Hilda E. Webb, hon. secretary of the Brent Valley Bird Sanctuary Committee, Odstock, Hanwell, W.*

HOW TO GET DAHLIAS TO FLOWER EARLY.—

Many times I have been asked to state what Dahlias will flower early, say, at the end of July. It is, of course, quite unnatural for a Dahlia to flower at that time, as the weather is usually unfavourable to this moisture-loving plant, but as blooms are often wanted, the following method is the best to ensure getting them. Old roots very often throw up stems and flower as quickly as it is possible for any plant to do, but the drawback is that the flowers seldom keep up to a high standard after the first batch. The ideal system is to start with small, pot-grown roots, which are obtainable from all Dahlia salesmen. These roots should be potted into $3\frac{1}{2}$ -inch pots in a light, fairly-rich compost, and buried about $\frac{1}{2}$ inch below the surface of the soil. If the roots are very dry and the compost moist, do not water at all for a few days, or possibly not until the roots start growth. As a rule, they root very considerably in advance of making top growth, and, in fact, they are much best if allowed to start gradually in a cool temperature. Once they have made new roots they grow with rapidity, and if kept in heat or in any way shaded will run up 6 or 8 inches high before producing the first pair of leaves, and to check this tendency as much as possible, a frame is the best place in which to stand them. The one great mistake so often made is in letting the plants become pot-bound. Very soon after starting top growth, the tubers throw out strong, young roots all round the base of the new shoots. These roots will form the tubers of next autumn, and the all-important point is to get the plant properly transferred to the open ground before these roots gets distorted and twined round the side of the pots. Plants from pot roots, if treated in this way, grow without a check and flower very early, especially if naturally early-flowering sorts are selected. On the other hand, pot-root plants very quickly get hard and stunted if not planted out, and may in consequence prove worse than useless. Here are a few early Cactus varieties, but, though good, they are not the finest in other respects. *Sirius, Antelope, Dreadnought, Mrs. Grinstead, F. M. Stredwick, Eureka, Mrs. Raby, Mrs. W. Baxter, Brigadier, Rev. A. Bridge, Sunshine, Harold Peerman, Kathleen Bryant, Mercury, and J. H. Jackson. P. P.*

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

MARCH 8.—*Present.* Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the chair), Prof. Sir A. Church, Messrs. J. T. Bennett-Poë, F. J. Baker, W. Hales, R. Hooper Pearson, H. J. Veitch, A. W. Hill, J. S. Arkwright, L. H. Crawshaw, J. Douglas, W. Fawcett, J. Fraser, A. D. Michael, Dr. J. A. Voelcker, and F. J. Chittenden (hon. sec.).

Scale on Alder.—Mr. R. NEWSTEAD, A.L.S., reported that the scale insect on the stem of Alder shown from Mr. LYNCH at the last meeting was *Aspidiotus salicis*.

Fungus on Saxifraga.—Mr. CHITTENDEN reported that he had examined the *Saxifraga longifolia* sent to the last meeting by Mr. FARRER, and found it to be attacked by the rust fungus, *Puccinia saxifragæ*. This fungus attacks several species of Saxifrage, but appears to be rather uncommon in Britain.

Hyacinth bulbs failing.—Mr. MICHAEL reported that he had failed to find any bulb mites on the Hyacinth bulbs submitted to him at the last meeting. He thought the death of the roots

had, in all probability, been caused by excess of moisture soon after they were formed.

Malformed Cypripediums.—Mr. L. H. DE B. CRAWSHAY showed drawings illustrating the malformations shown in the twin-flowered inflorescence of *Cypripedium barbatum* from the Lord Avebury exhibited at the last meeting. He remarked that the two-flowered scape had branched about the middle. The terminal flower had a complete perianth except the labellum, which was absent, its only indication being a

being divided to the base. The ovary contained only one placenta, placed anteriorly.

Pigments in Bean seeds.—Mr. E. A. BUNYARD having examined the pigments in the seeds of the Beans shown at a recent meeting, wrote a letter stating that they exhibited seven distinct tints of brown, two shades of green, one black, and one blue-black. All the tints of brown are due to one pigment.

"It is insoluble in carbon bisulphide, water, alcohol, ether, acids, and alum, but soluble in



[From a photograph by J. Gregory.]

FIG. 50.—*REHMANNIA BRISCOEI*, A FIRST HYBRID FROM *R. ANGULATA* (OF COMMERCE) ♀ AND *R. HENRYI* ♂. (See p. 189.)

median streak in the anterior sepal. The column was formed of two normal anthers and two staminodes, the stigmatic plate being absent and its place occupied by the anterior staminode. The ovary contained two placentas placed opposite to one another. The lateral flower was normal in every way except in the trimerous outer whorl of the perianth, which showed reversion to the primitive type, the three segments

an aqueous solution of ammonia. A flocculent precipitate is thrown down from this solution by acetate of lead, and a strong black colour formed when treated with ferrous sulphate.

It seems probable therefore that the pigment is a tannin, but the small amount of material renders it impossible to affirm this with any accuracy. It is apparent that they are merely quantitative differences of the same pigment.

The Beans are referred to under numbers, as No. 1, &c.; the colours (Repertoire des Couleurs) as C 100, &c.

Bean No. 1 is, for instance, a near approach to C. 107, and the pigment, in a state of purity, would probably be between the "standard colours" Nos. C. 101 and 126.

Nos. 9, 6, 3, are closely matched by C. 107, 113, 143 respectively, and the parent Beans show the pigment much diluted in C. 128 D.

No. 8 has, however a distinct green tinge. In this, microscopical examination reveals the pigment in a finely-granulated condition, which causes, of course, greater light absorption than when in a liquid or semi-liquid condition. C. 167 gives this tint well.

No. 2 might at first be considered black, but a careful examination reveals its greenish hue, due to a large amount of the same pigment, also very finely granulated. No. 11, an apparent black, reveals the same condition. The colour in these two cases is soluble in ammonia, and gives a solution identical with that extracted from No. 1.

The only other case I have met where a yellow pigment strongly concentrated gives an appearance of black, is the case of *Cœlogyne pandurata*, in which the black lines are formed of highly-concentrated yellow pigment.

which had been taken from a cement tank, on the sides of which they had grown. The presence of the Algæ, which proved to belong to a species of *Oscillatoria*, rendered the water unpleasant to drink. It was suggested that the tank should be covered, as the Algæ would not develop in the dark, or that a weak solution of copper sulphate should be added to the water.

Lilac sporting.—Messrs. PAUL showed a white-flowered Lilac with two bunches of lilac flowers and one bunch of white at the end of one of the branches, affording a somewhat remarkable case of a white flower sporting to lilac.

[This interesting occurrence is to be explained probably on the basis that white Lilac is—as is the case with many white varieties of *Primula sinensis*—a dominant white. That is, that it is carrying colour which is prevented from showing owing to the presence of an inhibiting factor. The reappearance of the Lilac colour is to be attributed to segregation in the bud, of dominant white character from colour character, the latter only being represented in the coloured flowers.—Eds.]

Malformed Beech.—Mr. W. FAWCETT, F.L.S., showed a branch of a Beech from Tunbridge Wells having several large, smooth swellings upon it. A section through one of them showed

characters intermediate between its parents, being dwarfer than *R. angulata*, but having an erect inflorescence instead of a condensed one, as in the pollen parent. The flowers were intermediate in colour and of a soft, pleasing pink. The leaves were arranged in a rosette, and were similar in shape to those of *R. Henryi* (see fig. 81), and had the same dark veinings, while they were much more velvety-hairy than those of *R. angulata*, though a little less so than those of *R. Henryi*.

On the motion of Mr. Michael, seconded by Mr. Crawshaw, a Botanical Certificate was unanimously recommended for *Rehmannia Henryi*, now for the first time exhibited, and on the motion of Mr. R. Hooper Pearson, seconded by Mr. Bennett-Poë, a Certificate of Appreciation was unanimously recommended to Messrs. J. VEITCH & SONS for work in connection with the raising of the interesting hybrid. [The hybrid makes a beautiful pot or vase plant, as may be seen from our illustration at fig. 80.—Eds.]

Hybrid Strelitzia.—Mr. Hill remarked that a hybrid, intermediate in character between its parents, was now flowering at Kew. It had been raised by Mr. DALLIMORE, between *Strelitzia Augusta* and *S. Reginae*, and, whilst it had leaves similar to those of *S. Augusta*, it was only about 1 foot high. A full description is given in the *Kew Bulletin*.

Seedlings from Amaryllis.—Mr. J. HUDSON showed two seedlings from an *Amaryllis* which had been pollinated with pollen from *Vallota purpurea*. They did not show in any essential point the characters of *Vallota*, and it was suggested that the flowers should be self-pollinated and seedlings raised from them, to see whether the next generation showed any segregation in the direction of *Vallota*.

HORTICULTURAL CLUB.

OLD AGE IN TREES.

MARCH 8.—After the usual monthly meeting of this club, held at the Hotel Windsor, under the chairmanship of Mr. C. T. Druery, V.M.H., Mr. C. Bogue Luffmann gave a lecture on the subject of "Old Age in Trees," illustrated by a number of diagrams. In the first place, he pointed out that there was a material difference in the factors which governed the effects of age in animals and trees. Animals grow old and incapable in spite of the most generous food and surroundings; but trees have a duration of life governed by their environment. The animal's vitality declines by reason of internal changes, and it is sustained by constant renewal of effete old cells; while the tree, if favourably situated, continues for an indefinite period to add fresh material to its bulk, whilst retaining the old material. The life of the tree is therefore determined by its capacity to find nourishment through its root system, to hold its own in the competition with other trees for light, and air, and moisture, and by its greater or less immunity from disease, insect attacks, and damage in other ways. Given sufficiently favourable conditions, the duration of life of a tree may be immense, as is witnessed in the giant *Sequoia*, *Eucalyptus*, *Banyans*, &c. The lecturer considered, however, that, as time went on and the fabric of the tree extended, the difficulty of transit of the crude sap to the farthest leaf systems increased, as also the return of the elaborated sap, manufactured in the leaf under the influence of light. It followed naturally from the facts adduced that constant increase of size was a vital essential in tree life. A tree could only continue to exist by forming fresh growth, and in course of time much of the old growth perishes. Many interesting points were cited by the lecturer in connection with the sympathetic relations between the root and branch systems. The normal tendency of stem growth is perpendicularly upwards, and the tendency to tap-rooting at the outset of root formation is the direct corollary of this, but is usually checked by the fact that the root system requires aerated soil, and is thus forced to extend laterally, the result being that the tap root perishes. This often, the lecturer explained, left large cavities or wells in the soil beneath the trunk of the tree concerned. Moisture is one of the main needs of vigorous tree life, forming, as it does, both the circulating and the cooling medium. This is supplied by the root system, and conveyed to the



[From a photograph by J. Gregory.]

FIG. 81.—REHMANNIA HENRYI, ONE OF THE PARENTS OF *R. BRISCOEI*.

Nos. 8, 2, and 11, in which the pigment is much granulated, is paralleled by the dark chocolate varieties of Sweet Peas. In these the anthocyan sap is deposited in dense granules instead of being in liquid form, and the very dark shades are thus produced.

No. 10 is of a blue-black tint, not represented in the Code, and is due to a strong concentration of an anthocyan pigment. The well-known dwarf Bean Negro Largo is coloured with the same pigment. The limited material made it impossible to ascertain in which division of the anthocyan it should be placed."

Wood alleged to prevent iron rusting.—Mr. E. M. HOLMES reported that he had examined the wood shown at the last meeting by Dr. VOELCKER, and found it to be from a Coniferous tree which Mr. HERBERT STONE, F.L.S., suggested might be an *Agathis*; he had not seen it before, however. Mr. HOLMES could suggest no reason why a decoction of the wood should prevent rusting. It appears to contain resin, but that is insoluble in water. It is certainly not the wood of *Machilus Thunbergii*, as has been suggested, for that belongs to the Lauraceæ.

Algæ in water tank.—Dr. VOELCKER showed some small, rather leathery, masses of Algæ,

that the middle portions were quite dark brown, and that there were dark streaks in the wood. No fungus mycelium, however, could be discovered. It was suggested that the specimen should be referred to Dr. HENRY.

Suckers on Plums, &c.—Mr. J. FRASER, F.L.S., showed specimens illustrating the development of suckers on Plum roots. He pointed out that the first sign of a sucker appearing is a swelling on the root. On this swelling, scale leaves, rather thick in texture, arise, and later the little bud develops into a shoot. He suggested that, in order to avoid the development of suckers, seedling Plums should be used for budding, and not suckers.

Fasciated Asparagus.—Mr. J. S. ARKWRIGHT showed a remarkable specimen of fasciated *Asparagus* measuring about 2 inches across and somewhat spirally twisted. Fasciation is common in this plant, but it is seldom that such a large specimen is sent to the Committee.

Rehmannia × Briscoei.—Mr. H. J. VEITCH showed a hybrid between *Rehmannia angulata* (of commerce) ♀ and *R. Henryi* ♂. The hybrid had been raised by Mr. T. W. BRISCOE, after whom it was named. The parents were also shown, for comparison. The hybrid was in most

foliar system through the young wood which lies between the bark and the internal, inert wood. When it reaches the leaves it is evaporated through the stomata, and thus cools the foliage. If the supply be inadequate, the temperature rises, the bark is rendered harder, and the tree suffers. Different exposure to aerial moisture or drought may, therefore, render the timber in one and the same tree of very different quality, harder or softer, as the case may be, and a cross section of a trunk shows, to experienced eyes, from which quarter the moist winds generally blew, by a greater thickness of the ring on that side. The character of the soil is another factor, since it is within that that the roots have to travel and collect the moisture and earthy salts which constitute the raw material of the sap, and it is obvious that, in this direction, there is a certain check upon life duration, since the farther these roots extend the higher or wider the tree grows, and the longer the consequent distance between the points of collection and those of transpiration where the formative work of the tree is done. Due to these causes, plus the risks of storm and disease and insect attacks, the apparently indefinite life of a tree comes to a natural end at last, the depth of the vital wood becomes thinner and more detached, the sap grows less in quantity and inferior in quality, and the leaves fewer and fewer. Circulation slackens, growth ceases, decay sets in, and the tree dies.

A discussion followed, in which Messrs. Barr, Shillito, Bean, Drury, and others joined.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 17.—A meeting was held on this date in the Corn Exchange. Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver-gilt Medal for a display of *Odontoglossums*. O. × Mrs. Whitmeyer, a hybrid between O. × Harryano-crispum × O. × amabile received an Award of Merit.

H. J. BROMILOW, Esq., Rainhill (gr. Mr. Morgan), was awarded a Silver Medal for a group of *Cypripediums*. C. × *Leeanum* var. *Excelsior* received an Award of Merit.

J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), made a good show of *Cattleyas* and *Lælias*, for which a Silver-gilt Medal was awarded. *Lælio-Cattleya* × *callistoglossa* var. W. Holmes, *Cattleya Trianae* var. Prince Henry, and *Cattleya Trianae* var. Castle Hill all received Awards of Merit.

Mrs. S. WOOD, Glossop (gr. Mr. Gould), received a Silver Medal for a miscellaneous display. *Cattleya Trianae* Moorfield var. received an Award of Merit. *Cymbidium* × *Holfordianum* was a prominent plant in this group.

S. GRATRIX, Esq., Whalley Range (gr. Mr. Shill), exhibited *Dendrobium* × *Melpomene* West Point var. (Award of Merit), and a well-grown plant of *Cypripedium* × *Rosettii*.

A. WARBURTON, Esq., Haslingden, staged a large group of beautiful and rare forms of *Odontoglossums*, choice varieties of O. crispum being particularly noticeable. O. crispum var. *xanthotes* Warburtoniae, a flower of the greatest purity, uncommonly large in size and perfectly shaped, was awarded a First-class Certificate and a Gold Medal. A First-class Certificate was also awarded to O. × *ardentissimum* var. Sultan, and Awards of Merit to O. crispum var. *Gloria Mundi* and O. c. var. *Grand Duke*.

Dr. ALEX. HODGKINSON, Wilmslow (gr. Mr. Moore), exhibited *Odontoglossum crispum* var. *Lindenii* and a distinct form of O. × *Wattianum* named *principes*.

J. T. CLIFTON, Esq., Lytham (gr. Mr. Float), showed miscellaneous Orchids, among which were a number of botanical species, nearly all of which were submitted to the Committee. These provided a pleasing change from the large-flowered species and hybrids.

Mr. W. SHACKLETON, Great Horton, Bradford, was voted an Award of Merit for *Cypripedium* × *Cleola*.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), staged a group of well-grown and showy plants, principally *Odontoglossums* in variety. (Silver Medal.)

Other exhibitors were Messrs. CYPHER & SONS, Cheltenham (Silver Medal); Messrs. KEELING & SONS, Mr. J. RUTHERFORD, Mr. E. V. LOW, Messrs. WM. BULL & SONS, Mr. N. GALTOWAY, and Messrs. STUART LOW & Co. P. W.

BRITISH GARDENERS' ASSOCIATION.

FEBRUARY 22.—At the last meeting of this association, Mr. Geo. Hemming in the Chair, resolutions were passed, condemning the action of the recent Parks' appointment of the London County Council. A sub-committee was appointed to consider the holding of a congress of gardeners. Invitations will be issued to leading members of the profession to take part in it. Fifty-three new members were elected, bringing the total up to 1,706. John Weathers, Secretary.

MARCH 10.—The monthly meeting of this Branch took place at Carr's Restaurant on this date. Two new members were elected, making the total membership of the Branch 183.

It was decided to send a letter of protest to the Greenwich Borough Council on the recent appointment of an engineer to the post of superintendent of Charlton Cemetery.

The lecturer for the evening was Mr. Palmer, who gave an address on "Trees and Shrubs." Mr. Palmer dealt with their propagation by means of seeds, cuttings, layers, budding, grafting, and division. He also referred to the planting and pruning of the various species, and gave a list of trees and shrubs suitable for different purposes.

In the discussion which followed the reading of the paper, Mr. Friend said that in Islington even such hardy subjects as Privet gradually died, and needed to be replaced every two or three years.

The members will hold a Bohemian concert at Carr's Restaurant on March 19. The chair will be taken by Mr. E. F. Hawes at 7.30 p.m. The proceeds will be given to a London hospital.

READING ROSE.

FEBRUARY 23.—The annual meeting was held at the Abbey Hall, Reading, on this date. The Rev. F. Page-Roberts, president of the National Rose Society, presided.

It was stated in the annual report that, despite the attractions at Foxhill (the grounds of which were kindly lent by the president, Mrs. Rufus Isaacs), the gate receipts at the annual show were only £38 18s. 9d., whereas the takings at shows four years ago were about £60. This was a great misfortune for the society. The year's work shows an increased deficit of £34 19s. 6d. The show was otherwise a great success. Owing to the serious financial position in which the society is now placed, the committee have very carefully considered the advisability of continuing the show, and have been obliged to decide that it is useless to do so unless some other element can be introduced to attract the public. They will, therefore, recommend to the members that classes for Sweet Peas shall be offered, and as several ladies and gentlemen have very kindly promised assistance in the shape of prizes, it is not likely to add to the expenses of the society, but, on the contrary, it is thought that it will be the means of not only making a more attractive show, but of securing a better gate. The committee will further recommend that the 1910 show shall be held on Saturday, July 16, in the Forbury Gardens, if available.

The members of the committee were re-elected, with the exception of Mrs. Ashby, Miss Ratcliffe, Mr. Toogood, Mr. Webb, and Mr. W. C. Blaxill, who resigned. Commander Humphery and Mr. J. L. Martin were elected as new members.

It was decided to hold the show on Saturday, July 16, and to alter the title of the society to the "Reading and District Rose and Sweet Pea Society."

SCOTTISH HORTICULTURAL.

MARCH 1.—The monthly meeting of the association was held in Edinburgh on this date. Mr. Whytock, the president, occupied the chair, there being about 90 present. A paper was read by Mr. James Moncur, Colinton, on "Weather Forecasts," dealing with the subject of approximating the weather without the aid of recording instruments. He pleaded for more attention by gardeners and others to the observance of natural phenomena as a means of foretelling local weather conditions. The paper gave rise to a lengthy discussion.

A number of exhibits were shown, including seedling *Clivias* from the Edinburgh Public Parks Department; some well-grown spikes of *Richardia africana*, from Miss BURTON, Polton (for which a Cultural Certificate was awarded); "Matchless" Greens and "Ormskirk" Savoys, from Mr. J. W. SCARLETT, market-gardener, Musselburgh; and a plant of *Coccyne cristata*, in a 7-inch pot, carrying 16 spikes and 41 flowers, from Mr. A. R. HENDERSON, Salisbury Green, Edinburgh.

Five new members were elected. The subject for the meeting on April 5 is "Comments on the Introduction to McIntosh's *Book of the Garden*."

LEEDS PROFESSIONAL GARDENERS.

MARCH 7.—The quarterly meeting was held at the Green Dragon Hotel on this date. Mr. Preece presided. Eleven new ordinary, and two honorary members have joined the society during the present year. The sum of £16 has been paid in sick benefits and £20 in funeral allowances. Two aged members have received financial assistance during the quarter. Only gardeners are eligible for membership. Application forms may be obtained from the secretary, Mr. George Carver, Chapelallerton, Leeds.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

MARCH 14.—The annual meeting was held on Monday last in the Horticultural Hall, Vincent Square, Westminster. Mr. C. H. Curtis presided.

The following are extracts from the Report:—

"Sixty-five new members were elected during the year, but as 24 members lapsed and seven died, the net increase is 34, the total membership now standing at 1,325. One of the deceased members was Mr. Nathan Cole, who, in the earlier years of the society's work, was a member of committee. The amount paid out to nominees of deceased members was £300 10s. 11d., this sum including £30 4s. 1d. paid to the nominee of a lapsed member.

"The sum of £9 7s. 2d. has also been paid to lapsed members on reaching 60 years of age.

"Subscriptions to the Benevolent Fund amounted to £231 3s. 4d., and the payments therefrom to £129 11s., the latter amount including the sums regularly paid to several members over 70 years of age, as well as a few grants made to members in great distress.

"The Convalescent Fund does not thoroughly fulfil its mission, and the committee believes that if members recovering from severe illness would take advantage of the benefits it offers there would be a material reduction in the amounts paid out during sickness. Members often return to business before fully recovered, and consequently have sometimes to come again upon the Sick Fund, whereas a brief holiday and change of air following sickness would fully restore them. The subscriptions to this fund, including £5 5s. from Mr. N. N. Sherwood, V.M.H., amounted to £10 2s., and the one grant from the fund was £1 10s.

"The management expenses have been kept as low as possible consistent with the proper working of the society. There has been no special or extra expenditure of any kind, and the total management charges amount to £195 11s. 10d., as against £192 19s. 10d. in 1908.

"The subject of providing for a grant to any member who may have the misfortune to lose his wife by death has been considered by the committee, but . . . the committee proposes to take actuarial advice before putting any proposals before the members, and to take such advice in connection with the forthcoming quinquennial valuation of the society."

The total investments of the society amount to £36,514 11s. 7d., of the approximate market value of £32,400.

The Chairman, in moving the adoption of the report and balance-sheet, referred to the steady progress of the society. Mr. E. Burge seconded the motion.

Mr. J. Harrison Dick suggested that the management should consider the advisability of forming an advertisement and publication sub-committee, for the purpose of making known the aims and objects of the society. Mr. Price considered a good way of advertising the society

was for the members to bring it before the notice of the members of local horticultural societies. Mr. Mark Webster also spoke to the same effect, after which the report was adopted unanimously.

The retiring members of the committee, Messrs. Woods, Harding, Harrison Dick, and Wilson, were re-elected. On the motion of the Chairman, Mr. W. Collins was elected secretary for the ensuing year for the twenty-third time in succession. The treasurer, auditors, and trustees were also re-elected.

The monthly committee meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, March 14, Mr. C. H. Curtis in the chair. Six new members were elected, making a total of 32 for the past three meetings. Several members over 60 years of age took advantage of Rule 18 to draw the interest on their deposit account. A cheque for £11 14s. 4d. was drawn for the nominee of a late member. The amount paid to sick members

was a great lover of hardy herbaceous, Alpine, and aquatic plants, as well as ornamental trees and shrubs. Owing to the northern situation of his garden, it was a difficult matter sometimes to get certain species established, but he was generally successful, and especially in the case of Bamboos. Mr. Drewett resided at Riding Mill for the past 36 years and during the greater part of that time he interested himself in the hybridisation of Orchids. He was especially successful in the inter-crossing of the western world *Cypripediums*: one of his earliest successes was the raising of *Cypripedium* × *Juno* (*C. callosum* × *C. Fairrieianum*). During the last 10 years, Mr. Drewett devoted his attention principally to the inter-crossing of the winter-flowering *Cypripediums*, and his name will be associated with the introduction of *C. insigne* Aberdeen. He collected all the best varieties of *C. insigne*, and gave much attention to crossing them. Perhaps the finest variety he raised is *C. i. James Renwick*, which

LAW NOTES.

FLOWER SHOW DISPUTE.

At the recent Chester Assizes, before Lord Coleridge, an exhibitor at the Gresford and District Rose Society's exhibition brought an action for damages for slander against a collier, also an exhibitor. The complainant asserted that the defendant had accused him of stealing Roses from his garden and exhibiting them as his own. The evidence revealed the fact that such illicit practices were quite common at the local exhibitions around Gresford, and the defendant said that he had on several occasions furnished the plaintiff with flowers for exhibiting, whilst plaintiff himself admitted in cross-examination that he had asked for things for other people, but not for himself. It was proved that one of the members of the committee had furnished plaintiff with Stocks for another show. This committeeman sat at the inquiry, instituted by the Gresford Show Committee, which exonerated plaintiff from the charge of corruptly exhibiting. The judge, in summing up, advised the jury to set aside the question of the committee of inquiry, remarking that they might as well have a number of poachers to try a poacher as accept the evidence of the committee.

The jury returned a verdict for the plaintiff with one farthing damages.

NURSERYMAN'S FAILURE.

In regard to the failure of Mr. Thomas Albinus Thomsen, of Painter's Lane, Waltham Cross, nurseryman, the official receiver for the Essex district has issued particulars, from which it appears that the debtor has filed a statement of affairs showing gross liabilities amounting to £11,009 5s. 7d., of which £9,428 2s. 7d. is expected to rank against the estate for dividend. The assets are estimated to produce £18 17s., thus leaving a deficiency of £9,409 5s. 7d.

The debtor alleges his failure to have been caused through "Want of sufficient capital for rapidly extending business, and heavy interest of moneylenders."

NITROGEN COMPOUNDS IN RAIN AND SNOW.

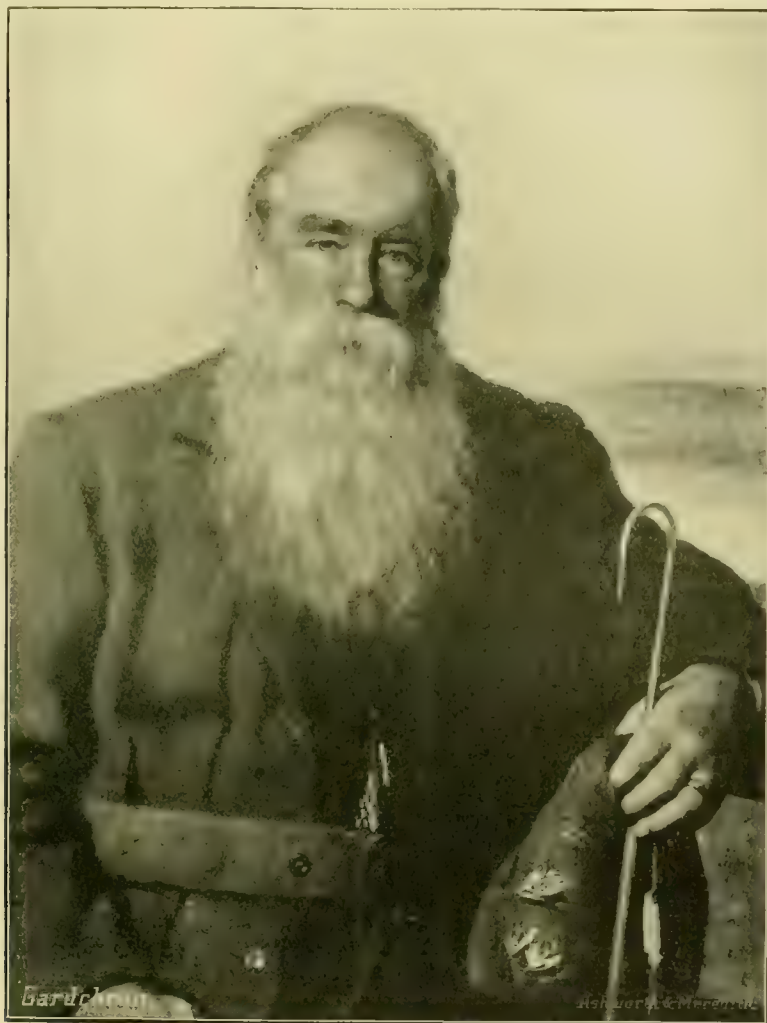
SINCE February, 1907, determinations have been made at the Ottawa Experimental Station by Professor F. T. Shutt, on the nitrogen compounds in each fall of rain and snow that furnished on the catchment area a sufficient quantity for analysis.

From the data so obtained and the precipitation results (rain and snow in inches), the author has been enabled to calculate approximately the amount of combined nitrogen furnished to the soil per acre in the vicinity of Ottawa, U.S. Another year's determinations are now reported, and in certain respects they are extremely interesting, as showing that practically twice as much nitrogen (chiefly as free ammonia) was found as in the rain and snow of the preceding year. This was traced to the smoke-laden atmosphere which prevailed during the autumn months in the neighbourhood of Ottawa, caused by the extensive bush fires which raged for many weeks, and which resulted in a large destruction of timber.

The first year's results in this investigation (March, 1907, to February, 1908, inclusive) showed that the total precipitation during that period was 24.05 inches of rain and 133 inches of snow, and furnished per acre 4.323 lbs. of fertilising value to the soil.

In the table that follows are given the data of the year ending February 28, 1909, and it will be noticed that in certain respects they differ markedly from those of the preceding year. The difference lies chiefly in the much larger amounts of nitrogen found in the rain, more especially in the months of September and October.

The monthly precipitations, the average



THE LATE MR. DREWETT O. DREWETT.

since the last meeting was £60 5s. At a subsequent meeting, Mr. C. H. Curtis was elected chairman of committee and Mr. T. Winter vice-chairman for the ensuing year.

Obituary.

DREWETT O. DREWETT.—We regret to record that the death of Mr. Drewett O. Drewett, of Willow Wood, Riding Mill, Northumberland, took place on Wednesday, March 9. The deceased gentleman, who was 72 years of age, was preparing to accompany Mrs. Drewett on a visit to friends, when he was taken ill in his dressing-room, and died shortly afterwards. Mr. Drewett had two hobbies—gardening and fishing. Particulars of his interesting gardens, with illustrations, have been given in these pages at various times during the past quarter of a century. He

he named after his gardener, who ably assisted his late master in this work. The local Gardeners' Mutual Improvement Societies, especially that of Corbridge, will miss Mr. Drewett's advice and support. The portrait now reproduced is from a painting, and represents Mr. Drewett in fishing costume. H. J. C.

JAMES MCINDOE, V.M.H.—As these pages are passing through the press, a telegram has reached us announcing the death, on Wednesday evening, of Mr. James McIndoe, late gardener at Hutton Hall, Guisboro, Yorkshire. Mr. McIndoe was appointed gardener at Hutton by the late Sir Joseph Peace, early in the 'seventies, and rapidly made a name for himself as a grower and exhibitor of choice fruits. Since his retirement from Hutton Hall, some years ago, Mr. McIndoe has resided at Dartford, in Kent, where he died after a long illness caused by cancer. A few years ago he visited New Zealand, and, on his return, contributed articles to the *Gardeners' Chronicle* on Grape growing as practised there.

amounts of nitrogen present as ammonia and as nitrates, as obtained from the several analysis, and the pounds of nitrogen furnished per acre, are set forth in the table printed below.

The amount of nitrogen in the rain and snow at Ottawa during the year, it will be seen, was 8.364 lbs. per acre, practically twice the quantity found in the preceding year.

Further reference to the foregoing data shows that the rain falling in September, October and November was particularly rich in ammonia. A very severe drought prevailed during August, September and the first three weeks of October, the rainfall being considerably below the average for these months. This excessive dryness of the weather allowed the bush fires, which are not unusual at this time of the year, to spread and gain very considerable headway. These fires raged almost continually, the rainfalls being very light for many weeks, so that for two months, more or less, the atmosphere was heavily charged with smoke. Hundreds of acres of forest were burnt, and thousands of dollars' worth of timber destroyed. This smoke naturally contained large proportions of ammonia as a product of combustion, and hence the scanty rainfall that occurred during these weeks was exceptionally rich in that constituent.

RAIN AND SNOW AT OTTAWA FOR THE YEAR ENDING FEBRUARY 28, 1909.

Month and Year.	Rain.	Snow.	Total as Rain.	Nitrogen as Ammonia.	Nitrogen as Nitrates.	Total Nitrogen.	Nitrogen per Acre.
	inches.	inches.	inches.	per million.	per million.	per million.	lbs.
1908.							
March	2.24	13.5	3.57	.291	.183	.474	.383
April	1.94	4.00	1.74	.758	.374	1.132	.446
May	5.46	—	5.46	.550	.174	.724	.903
June	1.31	—	1.31	.340	.194	.534	.159
July	2.77	—	2.77	.505	.114	.619	.450
August	1.72	—	1.72	.699	.208	.907	.354
September	1.00	—	1.00	5.555	.897	6.452	1.462
October	2.28	—	2.28	3.702	.551	4.253	2.197
November	1.48	10.00	2.48	1.466	.171	1.637	.920
December	0.21	41.75	4.39	.330	.148	.478	.476
1909.							
January	2.46	11.00	3.56	.390	.129	.519	.420
February	0.72	16.25	2.35	.253	.109	.364	.194
Yearly Total	22.99	96.25	32.63	—	—	—	8.364

Of the total amount of nitrogen, 8.364 lbs., 84 per cent., or 7.026 lbs., occurred as free and organic ammonia, and 16 per cent., or 1.338 lbs., as nitrates and nitrites.

The nitrogen furnished by the rain was estimated at 90 per cent. of the whole, or 7.528 lbs. per acre; that by the snow at 10 per cent., or 0.836 lbs. per acre.

The data thus obtained confirms the results of the previous year, that the rain is much richer in nitrogenous plant-food than is the snow. *J. J. Willis, Harpenden.*

TRADE NOTES.

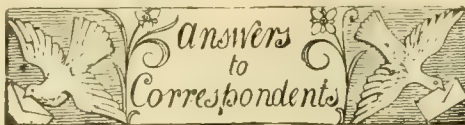
MR. W. G. INGLIS, for the past three years a representative of Messrs. Dicksons & Co., Edinburgh, has entered the service of Mr. David W. Thomson, nurseryman and seedsman, George Street, Edinburgh, in a similar capacity.

MESSRS. MACKENZIE & MONCUR, LTD.

We are informed that Mr. W. E. Turnbull has been appointed by Messrs. Mackenzie & Moncur, Ltd., to succeed the late Mr. Dugald McCorquodale in the management of the business as carried on from 8, Camden Road, London, N.W. Mr. Turnbull has had 25 years' experience.

ENQUIRY.

WOOD MICE.—Can any gardener from experience give working details of any remedy, such as poison, &c., for the devastations of wood mice, which, in spite of trapping, are destroying entire species of Lilies and other plants in the wild garden? A friend of mine, and a far larger grower of Lilies than myself, writes to me that he is beginning to suffer in the same way. *Basil Levett, Co. Staffs.*



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the Publisher; and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the Editors. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BLINDS FOR GLASS HOUSES: *H. A. R.* The simplest type of blinds are those employed so extensively on the glass houses at Kew Gardens. Thin canvas is used, this being nailed or fastened with a lath screwed into the ridge board, the other end being rolled around a pole provided with a reel at one or both ends. It is a simple matter to lower or raise the blinds by means of a cord which travels in the reel and through a pulley at the top of

plete as possible. In the case of Ferns, the whole of a fertile frond should be sent.—*Journeymen.* *Melicytus ramiflorus*, a native of New Zealand, probably imported as a seed or seedling on the tree Fern stem and of little horticultural interest.—*A. E. S.* It is impossible to distinguish Bamboos from specimens so small as those you send; a piece of stem at least should be included, but we think No. 1 is *Phyllostachys aurea*; No. 2 may be *P. viridi-glaucescens*.—*Erin.* 1, *Begonia subpeltata nigro-rubra*; 2, *Selaginella uncinata* (Cæsia); 3, *Maranta Makoyana*; 4, *Jacobinia Ghiesbreghtii* (commonly called *Sericographis* in gardens); 5, *Lopezia miniata*; 6, *Rivinia humilis*.—*T. C.* *Scilla bifolia*.—*J. B.* A poor form of *Primula denticulata*.

"NEWTON'S HERBAL": *C. A. F.* The first edition of *Newton's Herbal* was published in 1770 at 12s. It depends on the condition of your copy of the sixth edition whether or not it will be worth as much. Lackington's books, owing to his practice of selling off remaining copies for what they would fetch, are usually cheap on account of their number.

PLANTS FOR AN UNHEATED VINERY: *E. A.* Half-hardy Ferns may be grown in your vinery under the shade of the vines, such as *Aspidium aculeatum*, *A. artistatum*, *A. capense*, *A. falcatum*, *A. frondosum*, *A. trifoliatum*, *Asplenium Adiantum-nigrum*, *A. crenulatum*, *A. citrifolium*, *A. Filix-foemina*, *A. f. cristata*, *A. formosum*, *A. lucidum*, *A. pteridoides*, *Blechnum australe*, *Cystopteris bulbifera*, *C. montana*, *Davallia canariensis*, *D. pulchella*, *Cyathea medullaris*, *Gymnogramme triangularis*, *Lomaria alpina*, *L. discolor*, *Nephrodium molle*, *N. montanum*, *Osmunda regalis*, *Pteris cretica*, *P. tremula*, *P. cristata*; also *Asparagus plumosa*, *A. Sprengeri*. If there are stages at each end of the vinery, you could grow a few *Pelargoniums*, *Fuchsias*, tuberous-rooted *Begonias*, and such like plants, with fair success. You might also try a few plants of Tomato (*Sunrise* is a free-setting variety). Put the plants out of 6-inch into 8-inch pots to fruit in, and confine the plants to one stem, pinching all side shoots as they appear. Stop the individual plants when they show three or four clusters of flowers. When the flowers have set and the fruits begin to swell give a surface dressing of artificial manure twice a week before applying clear water at the roots.

SWEET WILLIAMS DISEASED: *H. E. H.* The disease is known as the Large Dianthus Spot—*Septoria Sinarum*. Spray the plants with potassium sulphide, $\frac{1}{2}$ ounce to two gallons of water.

VINES UNSATISFACTORY: *Anxious.* There is no trace of disease in the shoots. The weakened condition of the vine is due to some error of culture, which has caused a check. Most probably the trouble is in the root system, but only those on the spot can determine this. A suitable artificial manure for vines is $3\frac{1}{2}$ ounces of superphosphate, 3 ounces of Kainit, 1 ounce of magnesium sulphate, and $\frac{1}{2}$ ounce of nitrate of soda. Apply this quantity, well mixed together, to each vine, and lightly fork it in the soil.

WORMS: *J. H., Burton.* The specimen received is known popularly as the hair-worm (*Gordius*). The English species have not been carefully studied, but it is known that several exist, and that they pass one portion of their lives in the intestines of beetles, insects and animals.—*W. H., Kirby Stephen.* The white worms you send (*Euchytraeus*) are common in well-rotted manure, vegetable mould, and elsewhere. There are many kinds, and they are at times very destructive. We have submitted the samples to the Rev. Hilderic Friend, who is the highest authority in this department, and hope to publish an article on the subject shortly.

"WORMS" IN SOIL: *C. W.* See reply to *W. E.* in the last issue, p. 176. Apply a little lime to the soil about the Violets.

Communications Received.—*W.D.* (Thanks for photograph)—*H. S. T.*—*J. D.*—*W. G.*—*C. P. D.*—*C. A. L.*—*F. M.*—*P. S.*—*A. P.*—*H. W.*—*J. D.*—*E. M.*—*W. Marshall* (Thanks)—*H. J.*—*A. B.*—*J. V.* & *S.*—*E. J. L.*—*H. Y.* (Next week)—*R. H. K.*—*A. B.*—*R. N.*—*B. E. F.*—*G. B.*—*R. P. B.*—*B. E. P.*—*D. G.*—*E. H.*—*J. E.*—*L. A. F.*—*S. P.*—*C. S.*—*Tring*—*Rosa*—*J. F.*—*W. N.*—*C. A. L.*—*Royal Meteorological Soc.*

NAMES OF PLANTS: *T. M. F.* 1, *Asplenium marinum*; 2, *Cheilanthes* sp.; 3, *Cheilanthes hirta*. Please note when sending material in future that the specimen should be as com-



Photographs by F. Mason Good.

FOXHILL, NEAR READING, THE RESIDENCE OF MR. RUFUS ISAACS, K.C.

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THE Gardeners' Chronicle

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SPEECHLY AND HIS BOOKS.

ENOUGH is known of the history of William Speechly to enable me to supply an instructive, if brief, sketch of his career. Born in 1723, the son of a farmer who lived in the neighbourhood of Peterborough, his father either gave him an extra good education for one in his position, or, as it is related, he himself supplemented his school studies by self-instruction. His writings display a good knowledge of English, and the plates which he drew for his books, and, in at least one instance, engraved, demonstrate accomplishments of no mean order. He commenced gardening at Milton Abbey, whence he went to Castle Howard, one of the then famous gardens of England. Next he became head gardener to Sir W. St. Quintin, whom he left in 1767 in order to become forester and gardener to the Duke of Portland at Welbeck. There Speechly seems to have been given every encouragement by his noble employer to carry out experiments. His name is usually associated with the culture of Pines and Grapes, but he was also an expert kitchen gardener, and occupied himself with forestry on an immense scale.

The student of historic horticulture must be struck with the epochs which mark the popularity of certain plants and fruits. The Orange, at the time of Evelyn, was the chief fruit that engaged the attention of the leading gardeners. The Pineapple, by degrees, caused the Orange to suffer semi-neglect, and later still the Grape vine superseded the Pineapple. Speechly's great horticultural work was to revolutionise the cultivation of the Pineapple, and to place it on a sound and permanent basis. At the same time he was the pioneer of the modern methods of Grape-growing, though he himself seems to have regarded Grapes as holding but a secondary

place in fruit culture. His second year at Welbeck was marked by the raising of about 70 seedling Pine plants, and shortly afterwards the structures in which these plants had been cultivated were replaced by others of a better class. In 1771 he visited Holland, and in 1775 he made his first known excursion into the domain of rural literature. This was in the form of a description of the method of raising and planting forest trees at Welbeck, which he wrote for Dr. Hunter, who edited an enlarged edition of *Sylva*, published in 1776. The Welbeck system was too complicated for notice at this moment, but the working details were of the most systematic character, and, though expensive, they were probably eminently successful. The Oak trees made special progress, and some planted exactly 50 years previously had, at the time of his writing, clean boles 50 feet in height. A scarce pamphlet of the date 1790, by H. Rooke, describes and illustrates "some remarkable Oaks in the park of Welbeck," but these were old trees.

In 1779, Speechly's *Treatise on the Pineapple* appeared. This was followed in 1789 by an equally important volume on the Grape vine. Both volumes had to be re-issued—the first in 1796, and the other, though undated, in 1805. Sir John Sinclair, the first President of the Board of Agriculture, was attracted by Speechly's writings, and got him to prepare some papers for his Board, but they were never published. In 1801 Speechly's younger son, who tenanted a large farm, died, and this led to the retirement of Speechly in order to manage the farm. Repton, a few years previously, had been making alterations on the grounds at Welbeck, but there seem to be no data connecting Speechly with these operations. As a farmer he conducted many experiments, and wrote articles which were favourably received, the Board of Agriculture showing its approbation by the award of an honorary medal. After leaving the farm he seems to have changed his residence several times. He died at Great Milton on October 1, 1819, leaving a posthumous work which was afterwards published.

It may be of interest to note some of the gardeners who succeeded Speechly at Welbeck. His immediate successor was Joseph Thomson, a pupil of his own, and at that time gardener at Billing, where he instituted a method of heating the hot-house by means of a lime kiln, which some will remember was revived as a novel system about 35 years ago. Thomson left Welbeck in 1832-3 to engage in landscape gardening. John Mearns succeeded but retained his situation only a few years, when William Tillery was appointed, and at once took a very high position among the gardeners of the last century. More recent gardeners at Welbeck were Mr. Horton and Mr. Roberts, and the present gardener is Mr. Gibson, who bids fair to increase the fame of these historic gardens.

Before discussing the salient points of the *Treatise on the Pineapple*, it will make its value more apparent if I refer to the measure of success attained by cultivators previous to its publication. The Pineapple engraved by Bradley some 60 years earlier, and another in the *Fruits of the Twelve Months* a little later in the century, shows three to four pips, and without going into further details, nothing seems to have been gained in the

interval, for we gather from Weston's *Tracts on Gardening* (1773) that fruits less than a pound weight were usual. The hot-house had been evolved almost solely to cultivate Pineapples, and advantage had been taken of it to cultivate tender exotics, and to force Strawberries, French Beans, &c., and, in some instances, to train vines on the back walls. The Pine pits seem to have been kept extremely hot and with very little ventilation, and, while the mussel scale was recognised and treated as a pernicious intruder, the mealy bug was tolerated as harmless.

Speechly's treatment was of a nature to increase the weight of the fruit enormously, although his achievements would be thought nothing of now, 84 ozs. being the heaviest weight he mentions. In the matter of heating, he condemned high winter temperatures, and he advised, in the summer months, abundant ventilation during suitable weather, and when it was very hot never closed the ventilators "sometimes for many weeks together." I cannot discover the temperatures he favoured, for, although he made thermometers for sale, these were marked in scales to suit the Pineapples. To induce the fruiting of shy varieties he "shaved" the roots, and one of his usual practices was to shake the soil from fully-grown plants in autumn and repot them in pots of the same size in order that the plants might have fresh soil to carry them over the fruiting period without an increase in the dimensions of the root-receptacles.

On going to Welbeck he found the Pines infested with bug, and one of the severest trials of his skill was the extermination of these, which he soon discovered to be the worst of all insect pests. The insecticide he favoured was quicksilver or mercury, and the adoption of this is one of the failings in his otherwise clear-sightedness. One of his contemporaries has left the assurance in print that by simply placing a little quicksilver in a hole made with a bradawl in the stem of a fruit tree infested with insects, these had all disappeared in three days. So we must be not too hard on Speechly, especially as many gardeners who adopted his "receipt" confirmed his statements. He poured a gallon of boiling water on a pound of quicksilver, repeating the process as soon as the previously-applied water had become cold, until sufficient to dip the plants had been obtained. Six ounces of soft soap were added to the water, and, after brushing as many insects off as was possible, the plants were dipped in the solution. This was followed by a second "dipping," when sweet oil emulsified with soft soap had been added, and the leaves were subsequently sponged. For a year afterwards the plants were watered with mercurial water. Tillery, it may be remarked, on his going to Welbeck, found the Pine plants badly infested with scale and bug, and later he also claimed to have delivered them from these enemies. Speechly figured the brown and the white scale and the mealy bug, "commonly called Pinebug," and etched the plate himself. Eleven sorts of fruiting Pines are described besides some variegated forms, and there is an interesting chapter on the many insects which infest hothouses, and methods of destroying them are described. R. P. Bretherton.

(To be continued.)

THE ROSARY.

WEeping ROSES.

WEeping ROSES add much to the beauty and interest of the garden in summer and autumn. If budded upon tall stems of the common Dog Rose, the numerous varieties of Wichuraiana Roses specially lend themselves to this form of training. Ayrshire Roses make effective subjects when grown in this manner, but their comparative short season of flowering is a point against their use on a large scale.

"Flight," is a very free-flowering garden Rose, of the multiflora type. It can be grown in any form, and is suitable for every purpose for which climbing Roses are employed. The flowers are semi-double, of large size, and are borne in huge corymbs of from 20 to 30 blooms each. The colour is bright pink, paling to white in the centre, and the individual flowers retain their beauty for a month, withstanding the effects of sun and rain, with no apparent loss in colour, and showing no evidence of decay until the last. The standard shown was budded in these

value, being inferior to climbers of similar shades of colour; but I think the climbing sport, as a rule, carries a little heavier flower than the normal type—is, in fact, stronger altogether. We notice this in Climbing K. A. Victoria and Climbing Mrs. W. J. Grant. These two, and the sports from Caroline Testout, Captain Hayward, La France, and Perle des Jardins, are almost indispensable; but the last-named is, unfortunately, rather tender, by reason of its exceedingly late and soft growth. All of these Roses are so well known that I need not describe them here; but there are several newer sports that are not so well known. Climbing Frau Karl Druschki is only a little stronger than the type, which, in itself, makes a good pillar or wali Rose. No better white variety exists; but I do not find it so satisfactory upon a wall as in the open. It is surprising how this Rose glories in exposure to any but the most inclement weather. Climbing Lady Ashtown will be an improvement, because, although the type is an excellent grower, the drooping tendency of its heavy blossoms will not be so inconvenient when they are raised higher from the ground. The same will apply, only in a lesser degree, to Climbing Lady Moyra Beauclerc. Climbing Liberty should be very good if we can secure a little more hardiness in its wood than the type possesses; there is no more brilliant scarlet. Ards Rover is grand, but it is a crimson-maroon more than deep red or vermillion. Climbing Cecile Brunner is a gem, and, I think, a little deeper in colour than the type, being more like Perle d'Or. It carries enormous trusses, each flower being carried very wide and showing itself well. Climbing White Pet is another good one from the small-flowered section. *Practical.*

CULTURAL MEMORANDA.

VIOLETS IN FRAMES.

MANY people endeavour to grow Violets in frames for autumn, winter, and early spring blooming, but comparatively few achieve real success. Yet if a few important points are closely attended to, Violet culture is by no means a difficult matter. Both the large single and the double or semi-double varieties may be grown for winter-blooming in cold frames, the first thing to insist upon being an early start with good, strong, divided plants. These are to be obtained in April from any grower, and should be set out on a border which is shaded during the hottest and brightest part of the day by a wall or fence. A north-east or north-west aspect is as good as any. The border should be prepared of sound loam, with a liberal admixture of sand and leaf-mould. The remains of a spent hot-bed forked in will improve matters if the soil is poor. Eighteen inches apart between the rows and a foot apart in the rows is not too much, and in planting, which should be done firmly, care must be taken not to bury the "crowns" of the plants. After planting, give a good watering, and see that the plants never suffer for want of moisture. During the summer weeds must be kept down and the soil between the plants lightly stirred on the surface with a Dutch hoe. After midsummer, runners and, at a later date, flower-buds are apt to appear, and these should be carefully removed as soon as they are big enough to handle. No shading beyond that given by the wall or fence will be necessary, supposing that the shade at mid-day practically covers the bed, for, although Violets cannot stand a great deal of sun, they like a certain amount, and always plenty of light. Towards the end of September, the plants, which by then should have developed into big, strong clumps well set with crowns, should be carefully lifted with a big ball of soil and transferred to a cold brick or wooden frame (the former for choice) in which a bed of soil, similar to that in which they have been growing, has been prepared. The bed should be made up to within 6 inches of the glass, as it is important to keep the plants from getting drawn. Plenty



FIG 83.—ROSE "MRS. F. W. FLIGHT" AS A STANDARD, IN BED OF VIOLA "WILLIAM NEIL."

Among climbing Polyantha Roses are many varieties of surpassing beauty; in most cases the growth is vigorous, so that the weeping habit may be most rapidly developed if assistance is given by tying the shoots down to a skeleton framework in the first instance. These artificial supports will be completely hidden when the specimens have made two years' growth.

The variety illustrated in fig. 83, "Mrs. F. W.

gardens in July, 1905, and planted in its present position in January, 1907. *Thomas Smith, Walmesley Gardens, Louth.*

SOME CLIMBING SPORTS.

A FEW excellent varieties of normal growth have produced sports of extra vigour in habit, and yet retaining all the other characteristics of the originals. Some of these are not of much

of air should be admitted at all times, except during very hard frost, and water must be given rather sparingly—just enough to keep the plants from suffering. Mats or old bags will be quite sufficient protection on the lights during frost or snow. Plants thus treated should bloom from October to April, the greatest show of blossom being generally produced in February and March. There are so many good kinds, both of double and single nowadays, that it is hardly necessary to recommend any particular varieties, but the old double Marie Louise and the single Princess of Wales are difficult to beat. *East Sussex.*

CORDYLINES.

WHEN propagating Cordylines (*Dracenas*) from stems, the young shoots should be taken off about 1 inch from the joint, and not close to the stem, otherwise it would be a considerable time ere any new growths are produced, but when this amount of the shoot is left, two sprouts will arise forthwith. Slow-growing species take about two years to develop canes of the required length—4 feet to 5 feet—for propagating purposes.

Dracena Massangeana is a capital decorative plant for the dwelling, the variegation being confined to the middle area, whilst the margin is green and not liable to decay. *F. M.*

FLORISTS' FLOWERS.

NEW SWEET PEAS.

WHEREAS hooded forms of the "grandi flora" type of Sweet Pea were the prevailing fascination with cultivators a few years ago, the Spencerian hybrids, with their waved or crenulated standards, now prevail. Doubtless size and, to some limited extent, gracefulness of aspect have been gained thereby; but they do not seed so well as their predecessors, while certainly the crosses are not so easily established. During last summer, in far California, my Eckfordian name sake was crossed by Mr. Henry Ohn with the Countess Spencer (at the nurseries of Messrs. C. C. Morse and Co.), but Mr. Lester Morse is not yet quite certain if the result will prove successful, as it is usually a long period before such hybrids—always somewhat capricious and unreliable—become perfectly fixed.

Some of the very finest of recently-introduced varieties have come to us from British raisers, and especially from Miss Hemus and Messrs. Dobbie & Co. Miss Hemus has just given us a supreme beauty in Zero, which many cultivators regard as the most graceful, pure white Sweet Pea that has hitherto appeared—surely a high tribute, seeing that it has such formidable rivals as Etta Dyke and the beautiful Nora Unwin. Evelyn Hemus, by reason of its distinctive colour, has already attained to a unique position. The latest varieties of great merit sent out by Messrs. Dobbie & Co. are Mrs. Hugh Dickson and Masterpiece, of which the latter—the only existing rival of Mrs. Asta Ohn—has been raised by that renowned exhibitor and assiduous hybridist, Mr. Malcolm, of Duns. "Sweet Lavender" would have been an expressive name for this charming variety, which, in addition to its exceedingly refined appearance, is commanding in dimensions. Mrs. Hugh Dickson has close affinities with that charming variety, Mrs. Henry Bell, and may be characterised as the Queen of the Cream-pinks. Mr. Eckford has this season sent out four new varieties, of which the most popular is certain to be Picotee, a waved flower of large size and exquisite form, pure white, with a delicate edging of softest carmine. The other Eckfordian introductions are Vicomte de Zanzé, deep, bright rose; Mrs. E. Gilman and Mary Vipau.

Among the most notable of the new Californian varieties introduced by Mr. Burpee and Mr. Lester Morse are W. T. Hutchins, Senator Spencer, Miriam Beaver—a very beautiful new Spencer, soft, glowing apricot in colour—and Marie Corelli. *David R. Williamson.*

THE ALPINE GARDEN.

ROOT SYSTEMS OF IMPORTED AND HOME-RAISED PLANTS.

ONE of the greatest difficulties that cultivators of Alpine plants have to contend with is the establishing of collected specimens, and particularly those which, in their native habitats, occupy rocks or very stony ground. Besides this, the recipient of any consignment of wild plants has always to contend with the ruthless manner in which many plants are torn from their original positions, to say nothing of the losses attending delay in transit and bad packing. A good example of the greater value of the home-raised seedling plant, as compared to the collected specimen, is seen in fig. 84. The plant from which the roots on the left-hand side were taken had a root-stem, still attached, of about 12 inches in length, and, judging by its uniform size, it would be safe to assume that a further 12 inches or even 24 inches was attached to the plant before a fibrous root-system was formed. This length of root—36 inches in all—is not unknown in the case of Alpines of the dwarfest stature; hence it need surprise no one



FIG. 84.—IMPORTED AND HOME-RAISED ROOTS OF ANEMONE SULPHUREA.

in the case of a plant of bolder growth. To the fibreless condition of these long-extended roots must be attributed the loss of many plants, which, in other respects, are sound enough when received. Clumps of wild Hellebores, Adonis, Anemones, and other Alpines are often received with the merest stumps of roots. The larger rosettes of *Saxifraga longifolia* often perish outright as soon as they come into contact with cold soil at the beginning of winter. It was the knowledge of this fact, and the discovery, years ago, that the plants placed in ashes or fibre, or a mixture of the two, rooted quite well, that caused me to suggest its general adoption for collected plants. Those interested in the root-propagation of choice hardy plants—the roots of the collected example shown at the left of the picture would doubtless have perished if planted in cold soil—will know that a slightly-increased scilicet warmth, with freedom from cold and continuous wet, are necessary to set up a renewed activity and growth. Apart from this, however, the extra fine root-system on the right proves that choice Alpine plants are best raised from seeds. The two plants shown are of one species, *Anemone sulphurea*, the one a fibreless

root-system, the other, which is three years old, a compact mass of fibrous roots. That the advantages of the latter are great—just as the disappointments and failures from the planting of the collected examples are numerous—no one having knowledge of such things will gainsay.

The fine specimens of *Anemone sulphurea* exhibited by Messrs. Cutbush & Son at the R.H.S. Hall last summer I have already referred to in these pages. They were gathered from seedling plants of a similar age to the one now figured. No finer exhibit of the species has, to my knowledge, been before the Royal Horticultural Society during the past 20 years. A bed of *Anemone sulphurea* in full flower is almost unknown in gardens, but it is worth much trouble to obtain. *E. H. Jenkins.*

VALERIANA SALIUNCA.

I HAVE always been indifferent about the merits of the Valerians, great and small. Dull and dowdy I have considered them, lacking in all brilliance and personality—the tall English weed being the finest of its race—and uninteresting at that. The small Alpines, in particular, I regarded as insignificant pallid affairs, unworthy of culture. Well, now, I must make an apology to *Valeriana salinca*, the type of the dwarf Valerians—such as *V. supina* and *V. arizonica*. I do it now, as perhaps the plant hardly deserves the space and labour of a summer apology. But it is certainly well entitled to a note at the present time when greater glories are holding themselves in reserve. For *V. salinca*, established, is distinctly pretty—a wide, flat carpet of dark-green leaves, thickset with heads of rosy blossom, close upon the foliage. And these pink flower-clusters fill the wide air with a most sweet and delicious fragrance. This, of course, is a rare and signal merit among high Alpines; it is possessed also by *Valeriana supina* and the famous *V. celtica*; but *celtica*, being a spike, not a carpet, finds no place in this note. It was on the southern face of the Schlern that I best realised *V. salinca*, which there, in ordinary rich loam, formed broad mats of pink all down the steep debris-slopes, and gave promise of perfect amenability to cultivation. It is, of course, absolutely weedlike in its casiness; only, hitherto, one had merely grown a few oddments of it, in pots, and thus been so bored by its lack of effect that one had never troubled to plant it out. To get its full value out of *V. salinca*, you must obviously aim at having broad masses of it well-established in the open garden. Full sun and a light, rich loam, cool and friable, should easily secure this end. *Reginald Farrer.*

TREES AND SHRUBS.

THE STUARTIAS.

ALTHOUGH the *Stuartias* are extremely lovely shrubs, they are but rarely seen in gardens, probably owing to the facts that they are considered capricious and difficult to establish, of slow growth and by no means easy to propagate. Coming as they do from North America and Japan they should be hardy, but nevertheless they seldom succeed in the North of England, though in the South, in the few gardens in which they are grown, they do well if their requirements are satisfied. Moist ground is a necessity for the *Stuartias*, which will never flourish in sites where they are likely to be dried up in hot summers. In wet seasons the *Stuartias* always make the finest growth, and in their native lands they are generally found by the sides of streams or in moist places.

In America these shrubs are often found growing in the shade, but in this country, where the opening of the wood is a desideratum, an open but sheltered position is the best for them. Shelter is a necessity, for cold and biting winds are very harmful to *Stuartias*. Care should be taken that they are not crowded by robust growing neighbours, as they will never succeed unless

they have plenty of space for roots and branches. They are very difficult shrubs to transplant when of any size, and for this reason nursery plants should be kept in pots and the positions finally selected for them before they are planted in the open ground. Since small, young plants establish themselves more quickly than larger and older specimens, they should be planted out when they are not more than about 9 inches or a foot in height and given an open position where they are not crowded. A peat soil is generally recommended for *Stuartias*, but they will grow well in good, free loam, and may sometimes be seen in good health in very indifferent soil. They may be propagated by layers of the lower branches, by cuttings and by seeds, though the American species rarely ripen seed in this country.

The Japanese *Stuartia pseudo-Camellia*, however, often ripens seed, and Messrs. Veitch have

are creamy-white with golden anthers, whilst, in the bud stage, they are tinged with pink on the exterior. The edges of the petals are delicately fringed and the blossoms are of such purity that they have been termed shell flowers. The leaves are oval, and are from 5 to 6 inches long. The blooms appear singly at the leaf-axils, and open in July and August. It is a plant that flowers very freely when once permanently established, and succeeds in sandy loam. *Stuartias* are much benefited by a thick mulch, which will keep the soil moist in the driest seasons.

S. PSEUDO-CAMELLIA differs from the other species in having a more slender and upright habit, and in its leaves being smaller. It is a denizen of Japan, whence it was introduced in 1879. In its native country, on the mountains of Nikko and Hakoma, at an elevation of between 2,000 feet and 3,000 feet, it is said to reach

malachodendron, is said to have been introduced from America in 1743, but as it is stated to have flowered in Mr. Mark Catesby's garden at Fulham, in 1742, it was probably first imported at an earlier date. It is found in the warmer Southern States of North America, where it grows on river banks, in swamps and in shady spots, from the coast to the base of the mountains. It is less vigorous and more tender than the other species and rarely exceeds a height of from 10 to 12 feet. Its habit of growth is also looser than that of the others. At its best it is certainly one of the most beautiful of flowering shrubs, and its flowers are the largest of all, measuring fully 4 inches across. The shell-like petals are white and the central stamens red. The petals are generally streaked with crimson near the base and their edges are smooth. This is the earliest-flowering of all the species, the blossoms expanding in warm localities in the month of May, but in cooler districts they are often not at their best until July.

The *Stuartias* are handsome shrubs, and should be far more widely grown, for in the warmer districts their culture presents no insuperable difficulties, and a fine example in full bloom is one of the loveliest sights it is possible to conceive, while the flowers are invaluable for cutting. The autumnal colouring of *S. pseudo-Camellia*, with its glowing tints of crimson and gold, is particularly fine, and creates a splendid effect in the garden. Wyndham Fitzherbert.

CARNATION "R. F. FELTON."

THE perpetual-flowering Carnation illustrated in fig. 85 is one of the most recent novelties in this, the winter-flowering, section. Flowers were exhibited by Mr. H. Burnett at the Royal Horticultural Society's meeting on March 22, and they were generally admired for their large size, wide petals and rich pink colour. The blooms are so full of petals, that the calyx does not hold them intact in all cases, but Carnation growers have so got into the habit of using the india-rubber bands, that many of them prefer large flowers, even if the calices occasionally split. "R. F. Felton" is a magnificent variety for decoration, and will be one of the most popular in its colour.

VEGETABLES.

EARLY PEAS.

WE sow our first Peas at the beginning of February in turves. The turves are cut into 4-inch widths, and laid (grass side downwards) on strips of board, the same length and width as the turves. This is a much better plan than that of placing the turves in boxes, the advantage being that the Peas can be more easily planted in their permanent quarters. All that is necessary is to carry the Peas in the turves, still on the boards, on a hand barrow, or similar carriage, to the border in which they are to be planted; take out a trench with a spade, place the boards with the Peas on by the side of the trench, and by gently raising the side of the board, the turves will slide into the trenches. Anyone who gives this plan a trial will probably discard the method of placing the turves in boxes, and thus having to move one of the sides before being able to plant them out.

The Peas, when sown, are placed on the border of a recently-started Peach house. In the course of a few weeks they are ready for planting in their permanent quarters. We plant ours on the outside border of an early vinery or Fig house having a south aspect, choosing a mild and fine day for planting. We next proceed to protect them in the following manner:—Around the whole of the border in which the Peas are planted, boards or planks about 1 foot deep are fixed; across the top of these battens are nailed at about 3 feet apart. All that is then necessary is to draw a dressed canvas cover over the top



[Photograph by J. Gregory.]

FIG. 85.—PERPETUAL-FLOWERING CARNATION "R. F. FELTON": COLOUR PINK.

(Award of Merit at R.H.S. meeting, March 22, 1910.)

raised many plants from seed collected in their nursery. Where seed is not readily obtainable, cuttings of half-ripened wood taken early in autumn and placed in pots in sandy soil under a bell-glass will probably live, though they root very slowly and with difficulty. Six species are given in the *Index Kewensis*, but only three are in cultivation. *S. monadelphica* and *S. serrata*, two Japanese species, have not as yet been introduced. The following are the cultivated species:

S. PENTAGYNA is a native of North America, introduced into this country in 1785. It is a beautiful summer-flowering shrub, the hardier and more vigorous of the two American species. It is of freely-branched, erect growth, and in its native country attains a height of from 15 to 20 feet, growing in dense thickets near streams and rivers. The flowers, which are fragrant, are from 3 to 4 inches across and

a height of 50 feet with a trunk-girth of 6 feet. The white flowers, with orange stamens, are about 3 inches in diameter, but retain a cupped shape and never open flat, as do the blossoms of the other species. The leaves much resemble those of a *Camellia*, hence the name, and are smooth and of a bright green, narrow and about 3 inches in length. It blooms in July. In this country plants have attained a height of from 12 to 15 feet. The stems and branches of old bushes are coated with a smooth, red bark, which peels off in large, thin flakes. A large and well-grown specimen is a lovely sight in July, when covered with its snowy blossoms. The autumnal colouring of this *Stuartia* is very fine, it assuming glowing tints of yellow, orange and scarlet. It is also known as *S. japonica* and *S. grandiflora*.

S. VIRGINICA, for which another name is *S.*

when frost or cold winds render it necessary; thus the Peas are growing in a sort of rough frame, and if one of the very early dwarf varieties is grown, this frame will be quite high enough for them until all danger of frost is past. Harbinger is one of the earliest and best varieties for this culture. The frame can afterwards be knocked to pieces and stored away in a very small compass. We usually gather our first crop of Peas from such plants in June, our garden and climate being late and cold.

The next sowing is made early in March, alongside the front wall, and under the eaves of a range of glasshouses. Chelsea Gem or William Hurst are excellent Peas for this sowing, but both varieties require a little support, as they attain a height of about 18 inches. A string drawn along and fastened at intervals to nails in the wall will be found ample for the purpose.

These are followed by Pioneer and Early Giant, which are sown in the open ground. Both these varieties are excellent Peas, and in large establishments, when Peas are in great demand, they are difficult to beat. Both bear heavy crops of Peas of first-class flavour, and they will satisfy the demand until the main-crop varieties come into bearing. *Wilmot H. Yates, Rotherfield Park, Hants.*

FUNGICIDES.*

(Concluded from page 17)

A word or two may be said here on the important point as to the best strength to make Bordeaux mixture for use on fruit trees. Mr. Pickering points out that, owing to the difference between the American gallon (8.345 lbs.) and the imperial gallon (10 lbs.), the strength of the mixture used commonly in the United States and our Colonies on fruit trees (Apples, Pears, Plums, Cherries, but not Peaches or Apricots), viz., 8 lbs. copper sulphate, 8 lbs. quicklime, to 100 gallons (American) becomes altered to 9½ lbs. copper sulphate, 9½ lbs. quicklime to 100 gallons (imperial). Having regard to the fact, however, that excellent results have been obtained in this country with Bordeaux mixture made on the formula 8.8.100 (imperial gallons), and that some "scorching" may result with this mixture in certain seasons, we would certainly advise growers not to increase the amounts of copper sulphate and lime to 9½ lbs.

We must not leave the subject of Bordeaux mixture without mentioning the special form of it investigated by Mr. Pickering, and now known as the "Woburn Bordeaux mixture." In the Eighth Report attention was drawn to the fact that a number of different compounds (insoluble basic sulphates) are formed, according to the different proportions of copper sulphate and lime taken. To economise material, and at the same time to secure other advantages, as little lime as possible should be used consistent with throwing down all the copper. Full directions for making such a mixture (for which it is necessary to use "lime-water"—a clear liquid consisting of lime dissolved in water) were given in the Eighth Report. In that Report it was shown that, according to its chemical composition, this form of the mixture—which, it may be mentioned, has been in common use in Italy since about 1886—should be 2½ times as efficient as ordinary Bordeaux mixture, if the efficiency is measured by the amount of copper sulphate which is ultimately reformed on exposure to the air. In the present Report, as the results of experiments in which Bordeaux mixtures made in various ways were subjected to the action of carbon dioxide in the presence of water, the superiority of the Woburn Bordeaux mixture in the above-noted respect to the ordinary mixture was found to be as 20 to 1—though, for certain reasons mentioned in the Report, it is considered

advisable to take a lower estimate of the relative efficiency, viz., 12 to 1. But it must be remembered—and this is an important point—that if, as there are grounds for believing, the chief function of Bordeaux mixture lies in the protective covering of sprayed parts with copper carbonate and insoluble basic sulphates of copper, then the "Woburn Bordeaux mixture" would be much inferior to the ordinary mixture. It is a point that can only be settled, as Mr. Pickering points out, by experiments on a practical scale carried out by growers for several seasons. The "Woburn Bordeaux mixture" is admittedly more difficult to make than the ordinary mixture; it is best, therefore, for the grower to purchase it in paste form. Mr. Pickering, working with Messrs. W. Voss & Co., has succeeded in preparing a paste, now put on the market under the name of the "Woburn Bordeaux paste," which, when diluted with water, reproduces a mixture which is practically identical, both chemically and physically, with the freshly-made "Woburn Bordeaux mixture."

This mixture in paste form must not be confused by growers with the proprietary "Bordeaux mixtures" in powder form (Strawsonite, &c.); such dried Bordeaux mixtures are, as Mr. Pickering points out, unsatisfactory, and should therefore be avoided by the up-to-date grower. Strawsonite and similar dried mixtures are made by adding lime slaked with very little water to a very strong solution of copper sulphate, and then drying and grinding the mixture. Mr. Pickering obtained evidence, similar to that obtained in 1900 by Mr. R. J. Moss (whose work is not here mentioned), showing that Bordeaux mixture made from powders are inferior chemically and physically to the freshly-made mixture. For instance, the power of Strawsonite of keeping in suspension is nearly ten times less than that of the ordinary freshly-prepared Bordeaux mixture.

We can only allude briefly to some of the many other discoveries of practical importance announced in this Report. In connection with the "scorching" which occasionally results on the leaves and fruit of certain varieties of Apples, Mr. Pickering discusses critically the work of Professor U. P. Hedrick and of Professor C. S. Crandall, of the United States, and reviews it, together with the results of his own spraying experiments, in the light of our new knowledge of the chemistry of Bordeaux mixture. The conclusion is arrived at that some amount of injury to sprayed trees must be expected occasionally in England, as has been found to be the case in other countries, but that, on the average, the good done by Bordeaux mixture far outweighs the harm.

The chemistry of "Soda Bordeaux," made by mixing copper sulphate and carbonate of soda ("washing soda") is fully explained. It is a curious fact—and one showing how greatly research work is needed—that, until 1909, when Mr. Pickering communicated to the Chemical Society the paper, entitled "The Carbonates of Copper and the Cupricarbonates" (reprinted as an Appendix to the present Report), the chemistry of this mixture was unknown, although it has been used extensively for many years in Ireland and elsewhere. Mr. Pickering, from his chemical standpoint, does not advise the use of "Soda Bordeaux," and states that it is unlikely, on account of the insolubility of the copper compounds formed, to be a satisfactory fungicide. We should like to mention, however, that we have used it on a fairly large scale for the last two years, and found it efficacious, when sprayed on Potatoes, in keeping off the "blight."

Some interesting reasons are given why the addition of treacle to Bordeaux mixture is inadvisable. Experiments have shown that nicotine may be safely added to Bordeaux mixture. *E. S. S.*

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DUNN, R.C.I., and JOSEPH LICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Hydrangea hortensis.—Plants which have been wintered in cool frames or on shelves in a greenhouse will now be showing their flower-buds. The roots should be given weak farmyard manure on alternate waterings. If blue flowers are desired in this plant, plenty of peat and some iron filings should be incorporated with the compost at the time of potting, and a small quantity of charcoal and coarse sand. Later, as the blooms develop, give an occasional application of alum water. If it is desired to obtain large specimens, shorten the flower-stems after blooming, and place the plants into larger pots. Stand them in a cool greenhouse until the weather is warm enough for them to be removed out of doors. The old plants should now be started into growth, and if suitable shoots from these are potted single, into small pots, and planted in a brisk bottom heat, they will soon form roots. The variegated form is a very ornamental plant.

Primula.—Seedlings always give better results than plants propagated from either layers or cuttings. The seed-pans should be filled with suitable soil, the surface made even, then thoroughly watered, and allowed to drain. After the seed is sown, cover the pans with squares of glass, and a layer of damp moss. When the plants have germinated, remove the coverings, and when the seedlings have become used to the exposure, place them in a position as near to the glass as possible, taking care to shade them lightly during the hottest part of the day. The temperature should range from 50° to 55°, and the atmosphere of the house be well charged with moisture. When the seedlings are large enough, transfer them singly into thumb pots. Water them carefully, and, as soon as they have formed a good root-system, admit fresh air on all favourable occasions, but not in a manner to cause cold draughts. Endeavour to promote a continual and steady growth.

Maranta.—This plant revels in an abundance of heat, shade and moisture. The stock may be increased by division of the crowns previous to starting the plants into growth. Marantas do well in a mixture of peat and loam, and, as the plants require an abundant supply of moisture, the pots require to be well-drained. In the autumn they must be kept drier and placed in full exposure to the sun to assist in the proper ripening of the crowns.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Cauliflowers.—The plants which have been wintered in cold frames should now be exposed to plenty of fresh air, by removing the lights entirely in the morning and replacing them again before night-time. Leave the frames partly open even at night, so that, by the end of March, they may be removed altogether, with a view to placing the plants in their permanent quarters a week later, if the weather is favourable. Cauliflowers grown in pots for an early supply need very careful watering, for if they are allowed to become dry at this stage they are very liable to bolt. The object of the grower should be to have the plants growing steadily from start to finish, without check. Cauliflowers should always be planted in rich soil, and it does not matter much whether the land is of a heavy or light character, provided plenty of farmyard manure is incorporated with it in the autumn previous to planting. The ground should be forked over a few days before the planting, and the plants should be well watered before they are turned out of the pots. The distance at which they are planted must be regulated by the habit of the variety. In the case of Early London, a distance of 2 feet both between the rows and from plant to plant in the row is suitable; but in the case of Magnum Bonum and Early Market, 1½ feet each way will be sufficient. After the plants are set out in the rows, they will need careful attention in watering, for if they are allowed to become dry, bolting is liable to ensue, and especially if the roots have been pot-bound. Later, when the plants have become re-established, they should be given waterings with liquid manure, and the soil should be stirred with the hoe as often as

* Eleventh Report of the Woburn Experimental Fruit Farm, by the Duke of Bedford, K.G., F.R.S., and Spencer U. Pickering, M.A., F.R.S. 1910. Price 4s. 3d., post free. Summary, 6d., post free. (Amalgamated Press, Ltd.)

possible. In these gardens, 7,000 Cauliflowers are grown in pots during the winter, to be planted out as early in April as possible, batches being placed in different parts of the garden. The varieties cultivated are Early Market, Magnum Bonum, and Early London, the first heads, in favourable seasons, being ready for cutting in the first week of June.

Carrots.—The main crop may be sown as soon as the soil is in a suitable working condition. The land should be light in texture and rich in quality, but no manure should be applied now. Break up the soil deeply with a fork, and after it is made level, sow the seed in drills, made 15 to 18 inches apart, and 1 inch deep. When the seed is sown, and before the soil is raked level again, dress the land with soot; this is especially useful in gardens where the Carrot fly is troublesome. If the soil is of a heavy nature, and extra fine roots are desired, the seeds may be sown as follows:—Make holes in the ground by means of a dibber, about 18 inches deep, and fill these with finely-sifted soil, made moderately firm. Place a few seeds in each hole, and when they have germinated remove all but the strongest plant nearest to the centre. To provide a succession, frequent small sowings of Early Gem or some other suitable variety should be made from now until the middle of July. These crops will afford a supply of good, small roots well into the winter. Old Carrots in store should be examined occasionally, and have any growths removed. They will keep best in the coolest place available, and if a quantity of dry sand is mixed among them, this will prevent them from shrivelling. Young Carrots in pits should be given their final thinning, and then a good watering, allowing sufficient fresh air to keep the plants sturdy.

Herb garden.—Make new plantations of herbs in light, rich soil, and a sheltered situation. Mint is best increased from cuttings, and such plants produce the best roots for forcing in winter. Sage may be propagated from cuttings inserted about the end of April. Thyme may be increased either by dividing the plants or from seeds, but the latter method is preferable.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Dracunculus vulgaris.—This plant was formerly known as *Arum Dracunculus*, and is the Dragon Plant of South Europe. It grows about 2 or 3 feet high, and bears a number of fleshy leaves which are divided several times, almost to the mid rib. Like our native *Arum maculatum*, the leaves and the leafstalks are spotted, the mottlings being black. The illustration (fig. 86) gives a good picture of the inflorescence, the tapering spadix being just about to wither at the base. The spathe, which wraps completely around the part of spadix bearing the flowers, is coloured on the inner surface a deep purple or claret, the outer side being pale in comparison. Like many other Aroids, the inflorescence has a very disagreeable odour, which may, or may not, serve the purpose of attracting flies. The plant grows well in sandy soil in warm situations, and may be easily increased by offsets.

The water garden.—The time is at hand when hardy aquatic, bog, and waterside plants will need attention. Water, whether in the form of a stream, lake or pond, can always be made an attractive feature in a garden. Often it is so naturally, and, whenever any alteration is undertaken, the object should be to preserve, as much as possible, the natural character. It is astonishing what can be done with even an ordinary pond, and how attractive it may be made to appear when judiciously planted.

Water Lilies.—The *Nymphaea* should play an important part in any scheme of water-gardening. To obtain the best results with these beautiful plants, they should be placed in an open position, where they will receive the full benefit of the sun's rays. There is now a large selection, and the various kinds differ considerably in the length of stem and leaf. Because of this, one of the first considerations must be the depth of the water in which they are to be planted. Some of the strong-growing species, such as *Nymphaea alba*, and its variety *candidissima*, also *N. Laydekeri*, and the many beautiful varieties

of *N. Mariacea*, may be planted in as much as 5 or 6 feet of water, but others need to be placed in shallower parts. Now is a good time to propagate the plants by dividing the clumps, and planting may also be performed. The best way to plant *Nymphaeas* is to place the root-stocks in old baskets filled with good, stiff loam, smearing the surface over with a layer of clay to prevent the soil being washed out of the basket. The plants should be sunk where they are required to grow. If basins are provided for the growing of these water plants, the stonework should be thoroughly cleaned out each season. Many other aquatics may be planted like this in

sends up very conspicuous, blue flowers. Amongst subjects suited for the water's-edge, or in the shallows, the following may be recommended: *Menyanthes trifoliata* (the Bog Bean), *Sagittaria sagittifolia* (The Arrow Head) and its double-flowered variety; *Scirpus zebrina*, a very ornamental Rush that requires protection from rough winds; *Caltha palustris*, *C. polypetala*; *Rumex hydro-lapathum* (the giant Water Dock), *Typha angustifolia* and *T. latifolia*; *Phragmites communis* (both the Typhas and Phragmites are effective throughout the winter, but the old spikes will now need cutting down); *Cyperus* in variety, *Butomus umbellatus* (the Flowering Rush),



[Photograph by Chris Jones.]

FIG. 86.—*DRACUNCULUS VULGARIS*: SPATHE DEEP PURPLE COLOUR.

baskets; such, for instance, as *Nuphar luteum*, a native species known as the Yellow Water Lily; *N. advena* and *Orontium aquaticum*, a beautiful plant known popularly as the Golden Club, which produces its flower-scapes before those of the Water Lilies appear. Amongst other decorative aquatic plants may be mentioned *Villarsia* (this requires to be kept within bounds, or it will in time prove a pest); *Aponogeton distachyon*, which produces a continuous supply of sweet-scented blooms, and is appropriately named the Water Hawthorn; and *Pontaderia cordata*, which

Acorus Calamus (the Sweet Flag), and its variegated variety, and *Miscanthus*. Then for the bankside or bog-garden, the beautiful Japanese Irises, *I. Kämpferi*, are specially attractive. These need to be planted in a good rich soil, and one containing plenty of decayed manure. Other plants that can be associated in the water garden or the banks are *Astilbes* in variety, and especially *A. Davidii*, *Senecio clivorum*, the broad-leaved *Gunneras*, *Gynnerium* (*Cortaderia*) *argenteum*, *Funkia Sieboldiana*, *Polygonum Bistorta*, *Glyceria aquatica* fol. var., *Eulalia*, *Elymus*

glaucus giganteus, *Saxifraga peltata*, *Selinum tenuifolium*, *Helianthus orgyalis* and *Lysimachia vulgaris*. Suitable shrubs include the hardy Bamboos, also the choicer kinds of Alder and Willows, which always associate well with water scenery—those with coloured stems and shoots create a fine effect during the winter months, and as the young shoots are the most effectively coloured, the plants should be annually pruned to the ground level. Where it is practicable to apply a top-dressing to any of these plants, this will be of much benefit. Such plants as have needed protection during the winter should now be examined, and if growth is observed, the protecting material should be removed, but it will be necessary to place a temporary covering over the plants whenever frost is apparent.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Planting vines.—The present is the best time for planting vines. Procure some good, turfy loam, chop it up roughly, and mix with it plenty of rough mortar rubble, wood ashes, and soot. I do not advise the use of manure, as this has a tendency to make the shoots long-jointed and sappy. In turning the compost, do not throw it into a conical heap, as this would cause all the larger pieces to fall to the bottom instead of being evenly distributed. If the border requires to be entirely made, material for drainage purposes must be provided. A layer of broken bricks and other rubbish to a depth of 12 inches must be provided, and as the compost should be placed 2½ feet deep, this will mean excavating a trench to the depth of 3 feet 6 inches. Place turves grass side downwards for the drainage, and then fill in with the compost, making it firm as the work proceeds. If the buds of the young vines are swelling, it will indicate that the roots are becoming active, and ready to take possession of the new soil. Turn them carefully out of their pots, place them on the top of the border where they are to be planted and spread the roots around evenly with the fingers. Cover them with just sufficient soil, remembering that young vines should never be planted deeply. Place stakes to secure the rods, but do not tie the vines to the trellis, until the border is becoming settled. Give a good soaking with water, and then place as a mulch a little rough, flaky leaf-mould. Syringe the vines once or twice each day, and maintain an atmospheric temperature of 45°, without, if possible, the use of fire-heat.

Pot vines.—The plants having set their fruits, the thinning of the bunches must now be considered. Those of Black Hamburgh, Foster's Seedling, and Frontignan varieties may be thinned as soon as the berries are set, but in the case of Muscat varieties the thinning should be deferred until after the berries have stoned. From this date, sharp forcing may be practised, in order to have the Grapes ripened as early as possible. The minimum temperature should range from 65° to 70°, with an abundance of atmospheric moisture. See that the evaporating pans are filled with liquid manure, and damp the paths with the same fertiliser each evening. Pay great attention to watering, and feed the plants liberally with liquid manure. At this stage, the vines will be benefited with a top-dressing of turfy loam, enriched with some fertiliser, arranging pieces of fibrous loam around the top of the pot to form a rim to hold the top dressing.

Early vines in border.—Vines which were started into growth in December, being now in flower, require a night temperature of 60° and a fairly dry atmosphere. On hot, sunny days, after the vines have been pollinated, say about 2 p.m., sprinkle the paths and other bare surfaces of theinery with clear water. The pollination must be practised daily, using a rabbit's tail, as advised in a previous Calendar.

Successional vines.—These will require attention as to disbudding, pinching, tying, and training. See that the roots are given sufficient moisture but no more. The latest vineries should now be closed and the vines allowed to start into growth. Only a little fire-heat will be necessary, the rods should be syringed once or twice daily, and the floor damped to maintain a moist atmosphere. Close the ventilators very early in the afternoon.

Pot trees of Apple and Pear.—A few trees may now be placed under glass, to provide a

supply of ripe fruit a little in advance of the outdoor crop. Choose a lofty, airy, and light house. Examine the bottom of the pots to see that the drainage is in good order, and any worms in the soil will come to the surface if a soaking of clear lime water is given. Do not use fire-heat when 45° can be maintained without it.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Grafting.—In many districts the stocks are now fit for grafting, but in colder localities they may not be ready until later. It may be readily determined when the conditions are proper because when the sap is rising the buds commence to swell. It was advised in a previous Calendar to heel the scions in under a north wall, so as to keep them dormant, as the stock should always be in the more active condition. If this advice has been taken, the only point necessary for success is to see that the stock and scion, when united, meet, on one side at least at the active growing tissues, just near the bark. The grafting tools should have very keen edges, so that clean cuts may be made, which will heal and unite together quickly; some of the trees to be grafted, may have been headed back previously, in that case it is advisable to cut off a little more of the stem, so as to get into the sound, fresh tissue and saw it off in a slanting direction in a manner that will least expose it to



FIG. 87.—CROWN OR RIND GRAFTING.

the wet. In the case of those trees which are headed back, crown or rind grafting (see fig. 87) is usually practised. Make the scion about 6 or 8 inches long and cut the lower end in the shape of a long-pointed pen with a shoulder to it. The cut from the shoulder should measure about 2½ or 3 inches. Slit the bark of the stock about the same depth as the cut portion of the scion, lift the bark from the wood by means of a pointed bone or piece of hard wood, and then place the scion in position. In the case of stout stems, two, three, or even more grafts may be inserted. Grafting should always be done quickly, because any delay may cause the tissue to become dry and probably result in failure. After the required number of grafts have been placed on the stock, bind the bark tightly with broad strands of raffia, but not so tight as to cause injury. After this, either wax or grafting clay must be applied so as to exclude the wet until the union is effected. Tongue or whip-grafting is the best form for small stocks. A portion of the bark is removed in a slanting manner, and then a notch is made in the top of the stock to receive a small-tongued portion, which has been cut in the scion about half-an-inch deep. Prepare both the stem and the scion to fit perfectly, and keep the cut surfaces clear of soil or dirt before binding them together and applying the clay or wax.

Saddle grafting is generally practised where the saddle and stock are about the same size.

Both sides of the stock are cut so as to form a kind of wedge, and the scion is shaped in a similar manner, placed thereon and made secure in the ordinary way. Grafting wax is the simplest substance to apply, and is to be purchased cheaply from the horticultural sundries-man; the French preparation known as Mastic l'homme Lefort is also recommended. If clay is used, it should be quite free from grit or stones, and be well worked together in the hands; it will hold together better if horse-droppings rubbed through a sieve are incorporated with it. Before it is applied it should be of the consistency of soft putty.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Repotting *Thunias*.—Such species as *Thunia Marshallii*, *T. Bensoniæ*, *T. alba*, *T. pulchra*, *T. candidissima*, and the pretty hybrids *T. Veitchiana* and *T. Winniana*, now commencing to grow, are in a suitable condition to be repotted. The plants should be turned out of their pots, all the old soil shaken away, and the longest of the dead roots cut off, leaving them merely of sufficient length to enable the operator to fix the base of each stem firmly in the new soil. The general way of growing *Thunias*, in order to make specimen plants, is to place eight, ten, or a dozen stems in a good-sized pot. I see no advantage in bedding the stems out as some growers recommend. My practice, which is to place the base of the stems as closely together as possible, leads invariably to excellent results. The pots should be almost half-filled with crocks, which should be lightly covered with rough Sphagnum-moss. Over this place a thin layer of turfy loam; the advantage of having good loam below the ordinary compost is that the new roots find their way into it about the time the flower-spikes show. The compost may consist of good, fibrous loam three-parts and prepared cow-dung, as advised in my previous Calendars for the *Calanthes*, and finely-chopped Sphagnum-moss one part, adding a sufficient quantity of small crocks and coarse silver sand to keep the compost porous. The base of the young growths, when potted, should be just below the rim of the pot; each stem requires a stake to hold it firm. The soil should be pressed only moderately firmly. The plants should be afforded as much sunlight as possible, therefore choose the lightest available position in the East Indian house, or plant stove, with the tips of the stems nearly touching the roof glass. When such growths are excessively long, bend them over at the top, and tie them down to the stakes, so that the young breaks at their base may be brought well towards the light. Until the plants have become re-established water should be very sparingly afforded. When the new growths are about three-parts made, an occasional watering with weak drainings from the cowshed will be beneficial. In potting, do not destroy any of the back living stems, because if it is found desirable to increase the stock of any particular variety, they will be useful for this purpose at the proper time.

***Chysis*.**—*C. Sedenii* and *C. Chelsonii* produce their flower-spikes in conjunction with the young growths, and should therefore not be disturbed at the roots by repotting until after the flowers have faded. The plants should be suspended at the warmer end of the Cattleya house, where they will get plenty of light, sun-heat, and air. After the plants have once started to grow, they need to be lightly sprayed overhead several times a day and given sufficient water to keep the roots moist. Examine the plants every day for small yellow thrips, for if these once obtain a footing low down in the growths, it is difficult to eradicate them. After the flowers have faded, any plant that may need repotting should be seen to; they succeed admirably in ordinary flower-pots, with copper wire handles attached, so that they may be suspended to the roof. The pots should be about half-full of drainage materials, and a rooting medium of *Os-munda* fibre, with plenty of small crocks intermixed, is suitable. Throughout the growing season the plants should be thoroughly watered each time they become dry, but although great levers of water whilst growth is being made, they suffer if the soil is constantly saturated. *C. bractescens*, *C. Sedenii*, and *C. Chelsonii* are now in flower at Burford.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News. Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Herbaceous and Border Plants, Liliums, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; Palms, Plants, Ferns, &c., at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Perennials, Border Plants, Hardy Bulbs, Liliums, &c., at 12; Roses, Fruit Trees, Plants, &c., at 1.30; Imported and Established Orchids in variety, at 12.45; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—44.5°.

ACTUAL TEMPERATURES:

LONDON.—Tuesday, March 22 (6 P.M.): Max. 52°; Min. 38°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Wednesday, March 23 (10 A.M.): Bar. 30.5; Temp. 48°; Weather—Overcast.

PROVINCES.—Tuesday, March 22: Max. 50° Ireland S.W.; Min. 47° Yorkshire.

Plant Diseases.

So much activity has been devoted in recent years to the investigation of fungal diseases of plants that a new work from the pen of an authority on the subject is most welcome.

It is true that we have in this country the treatises by Mr. Massee, which serve as excellent introductions to the study of plant diseases; nevertheless, we have lacked, hitherto, a text-book which would serve for the student who has passed beyond the elementary stage, and is embarking on a more advanced course. This lack is now supplied by Professor Duggar's new volume in the American Country Life Series.*

The study of plant diseases is, up to a certain point, so easy and straightforward that anyone with a microscope and a little patience can pursue it. The spores produced by most parasitic fungi are of definite shapes, sizes and patterns, and hence, by comparing their microscopic appearances with the figures in the text-books, the several pests may be identified. But the trouble begins when the fungus suspected of causing mischief is not in the sporing stage. Then, to all but the specialist, the work of identification is well-nigh hopeless, unless means are at hand for keeping the fungus alive under such conditions as are calculated to induce it to form its tell-tale spores.

Hence the student will be particularly grateful to Professor Duggar for having

given, in the first part of his book, instructions for the cultivation of fungi in the laboratory. As he points out, the application of bacteriological methods to the cultivation of parasitic fungi is of the highest importance. Nor are these methods difficult of application; with the help provided by Professor Duggar's book, an intelligent student may carry his studies beyond the more empirical stage, which consists in the "running down" of fungi, to a stage in which he is able to control their cultivation and thus gain an insight into their peculiar modes of life.

So important is it that parasitic fungi should be studied in this manner, that we could have wished that Professor Duggar had dealt with "methods" even yet more fully. The information given in the seven chapters which make up Part I. (on Culture, Methods and Technique) is sound, and includes methods of isolation, preparation of pure cultures, and the technique of microscopical preparations.

Part II. consists of descriptions of parasitic fungi and of the methods whereby they may be kept in check. The perusal of this work demonstrates at once its excellence and the very primitive state of our knowledge with respect to preventive methods. The references to original memoirs, given at the head of each chapter, should prove of considerable service to the student, and must also give him—if, perchance, he is a native of this country—some food for reflection. For although one of the pioneers of plant pathology was the British botanist, Berkeley, of recent years, with three or four distinguished exceptions, our botanists appear to have almost deserted this field of investigation.

This is the more unintelligible, since not only may a study of fungal diseases lead to advances of the greatest practical importance, but it is bound also to advance botanical science no less considerably.

It is hardly an exaggeration to say that our only method of coping with these agents of plant disease is that of spraying; but spraying, important as it undoubtedly is, cannot be the last word of advice of science to the practical man.

Truth to tell, the ætiology of plant diseases remains in large measure for the future to discover. New methods are required. The enormous progress made in the combating of human diseases—progress which a few years ago the pessimist would have pronounced impossible—encourages us to entertain the conviction that new modes of attack on fungal pests will be devised.

Is it too much to hope that some of the botanical laboratories of this country will take up, methodically, this promising line of research? In it science and practice meet, and have much ground in common.

But though our perusal of Professor Duggar's book has suggested to us how much remains to be done, it also, as we have said, indicates how remarkable has been the progress in some directions in the unravelling of complex life histories of parasitic fungi, such, for instance, as the rusts.

It is indeed a graceful act of reparation that the country which has supplied us with so many mischievous pests should now come to our aid so successfully in the work of mitigating the evils for which they are responsible.

FLOWERS IN SEASON.—We have received from Mr. A. J. Bliss hybrids of *N. cyclamineus* and *N. obvallaris*. Mr. Bliss writes: "I enclose a few flowers of Daffodil seedlings—*obvallaris* × *cyclamineus*. I think only one *cyclamineus* × Trumpet cross, 'Comet,' has been shown in London. These are very early—earlier than *cyclamineus* itself sometimes, and very hardy. I have crosses of Golden Spur × *cyclamineus* and others, which have larger flowers but they are not so neat in form, and none are so early."

JAPAN-BRITISH EXHIBITION.—Mrs. EUGENE O'SULLIVAN has been invited by the Committee of the Japan-British Exhibition (Women's Work Department) to speak on French gardening (intensive culture) at the congress to be held for women at the exhibition on July 5.

HERBERT PARK, DUBLIN.—A premium having been offered for the best design for the laying-out of Herbert Park, Dublin, the site of the recent International Exhibition, that of Messrs. J. CHEAL & SONS has been accepted, and the premium awarded accordingly.

A CURIOUS AID TO FORMAL GARDENING.—

We have received, from Dr. LANDMANN, of Berlin, specimens of a curious invention for the purpose of assisting amateurs and others to easily form geometrical designs in their flower-beds. The aid offered by the inventor consists of sheets of tissue paper, on which the various designs are marked by rows of Cress seeds which are stuck to the paper with an adhesive liquid. In the case of a large symmetrical design, it is recommended that the sheet of paper should be spread over the bed and a little fine soil sprinkled over the paper to keep it in place. In the course of a few days the Cress seeds grow and mark out the lines the planter is to follow. Having planted his bed, the Cress may be pulled up. It is obvious the tissue must not be spread upon the bed many days before the cultivator wishes to plant his design. The inventor states that his designs may be used in the verandah, balcony, or even window sill, or in dishes or plates, provided the tissue of seeds is attached to a sheet of pure wood pulp impregnated with salts. A specimen we have placed upon a plate and merely watered shows conclusively that all the seeds gummed to the tissue may be depended upon to grow. The invention is certainly ingenious, but it comes at a time when geometrical flower gardening in this country is probably at its lowest.

IMPROVEMENT OF CROPS BY SELECTION.—

At a meeting of the Students' Association in connection with the Aberdeen and North of Scotland College of Agriculture, held in the Aberdeen University Buildings on Friday, 11th inst., it was decided, on the initiative of Mr. R. B. GREIG, Lecturer in Agriculture, to conduct an experiment with reference to the improvement of grain crops by selection. Put in the form of a resolution, and unanimously adopted, the particulars and arrangements proposed for the experiment are as follow: The attention of members is requested to the great improvements which have been made in American and Continental crops by selection of superior plants from an ordinary field crop. It has been shown that all ordinary fields contain a few superior individuals, and the discovery of those individuals has given to agriculture such well-known strains as Sandy and Potato Oats, Chevalier and Goldthorpe Barley, &c. There is no doubt that a systematic search for superior individuals in the crops of this country would result in considerable increases of produce without an appreciable increase in the cost of production. The association

* *Fungous Diseases of Plants*, by B. M. Duggar, Professor of Plant Physiology in the New York State College of Agriculture, Cornell University. (Ginn & Co., pp. 508. Illustrated. \$2.00.

considers that such work is worthy of encouragement, and would result in great benefits not only to the individual member by enabling him to increase his profits, but to agriculture as a whole by the introduction of superior strains and by giving publicity to this important method. The association therefore proposes to award a prize for any superior breed of Oats or Barley

crop as judged by the committee of experts, and an extra and additional award will be given to the introducer of a strain which is superior to all others in the college experiments. The procedure to be followed would be:—First year.—The member who proposes to enter for this competition must select not less than 12 of the best plants of Oats or Barley which he can find in

the grains in each ear and find the total weight if possible. Sow 20 grains of each ear in one row, thus making 12 rows. The seeds must be planted singly, each seed 4 inches apart and each row 6 inches apart. The rows must be across the rig in the middle of a field of grain, and not in a garden or specially prepared ground. Sow the same number of the ordinary unselected seed of the same crop in four rows at each end of the plot and in four rows in the middle, thus:—

Ordinary. Selected Ordinary. Selected. Ordinary.
xxxx 1, 2, 3, 4, 5, 6 xxxx 7, 8, 9, 10, 11, 12 xxxx

When ripe, cut each row separately, carefully marking it and making one bundle of it. Weigh the grain and straw of each row. Second year.—Sow the produce of the four best ears on small plots in the middle of the field, taking care to sow the same quantity of grain on each plot. Sow alternate plots of ordinary unselected seed. Cut and weigh the produce. Third year.—Send 1 lb. of the produce of the best selected plot and 1 lb. of the ordinary seed to the college for comparative testing. The award will be made by the college on the result of a careful field test in competition with well-known and recognised varieties. All the indications point to the experiment being taken up enthusiastically by the members.

AGAVE ELEMETIANA (see fig. 88).—A fine example of this species has been flowering during the past few weeks in the succulent house (at Kew). The spike, which reaches to the roof, is about 15 feet in length, and, with the exception of the lower 2 feet, is densely crowded with flowers. From an estimate there would appear to be about 3,150 flowers on the spike. According to Mr. BAKER this plant is a native of Mexico. It was introduced about 1864 and named in compliment to Mr. DE JONGE VAN ELEMET, of Overduin, in Zealand, the companion and biographer of General VON JACOBI and the owner of a remarkable collection of Agaves. It was flowered in 1867 by Mr. SAUNDERS, and a coloured figure appeared in the *Refugium*. It is now widely spread in collections and flowered at Kew in 1874, 1877, and again in 1883. It is monocarpic, dying after flowering, like its near ally *A. attenuata*, and is a most distinct and unmistakable species. *Kew Bulletin*.

VILLAGE OF THE TUDOR PERIOD.—We are informed that an attempt to revive interest in Elizabethan architecture, now becoming more and more rare in London, is to be made at Olympia next month at the exhibition devoted to the Ideal Home to be opened by Princess Christian. The whole of the large annexe is to be transformed into a Tudor village, with quaint rustic shops ranged in picturesque fashion round the green. There will be the village stocks, the forge, the barber's shop, and the old inn, whilst close by the brook will fall in a cascade over rocks into the trout pool. To add to the verisimilitude, all the occupants of the shops will be firms not less than 100 years old. The Tudor buildings have been designed by a well-known architect, and will be historically accurate in every detail.

PUBLICATIONS RECEIVED.—*Botany: Contributions to the Flora of Queensland and British New Guinea.* Extract from *The Queensland Agricultural Journal*, Vol. XXIII., Part 3, September; Part 4, October; Part 5, November, 1909; *Contributions to the Flora of Queensland*, Part 1, July, 1909, by F. Manson Bailey, F.L.S., Colonial Botanist.—*United States Department of Agriculture, Bureau of Plant Industry.* Bulletins: Yautias, Taros and Dasheens, by O. W. Barrett; and Agricultural History and Utility of the Cultivated Aroids, by O. F. Cook; New Methods of Plant Breeding, by Geo. W. Oliver. Circulars: The Utilisation of Pea-Cannery Refuse for Forage, by M. A. Crosby. (Washington: Government Printing Office.)



FIG. 88.—AGAVE ELEMETIANA FLOWERING IN THE SUCCULENT HOUSE AT KEW.

which may be introduced by a member who will adhere to the following scheme: The plots of a member who undertakes this work will be inspected during growth by a member of the college staff, who will assist by advice in any difficulty of detail. In due course the improved strain will be tested by the college, and the prize awarded to the variety which produces the largest

his ordinary field crops at harvest time. In selecting the plants he should have regard to these characters: Abundance of pickles or grains; strength and stiffness of straw; earliness and full maturity; number of stems per plant; and he should note that exceptional strength or prolific appearance is not due to extra space or manuring. He should proceed as follow: Count

OUR SUPPLEMENTARY ILLUSTRATION.

SCENE IN A TIBETAN FOREST.—The scene depicted in the illustration is from a photograph taken on the slopes of the Tsedfrong Valley, a tributary of the Mekong on the Mekong-Salwin divide just within the Tibetan frontier, about latitude $28^{\circ} 10' N$. It was taken with the object of showing the undergrowth and also the diameter of the conifers which constitute the bulk of the forest at that altitude—10,000 feet. The scrub consists largely of *Daphne*, *Cotoneaster*, and dwarf species of *Rhododendron*. The conifer is a species of *Abies*, and grows to an average height of nearly 200 feet with straight and shapely boles which, in extra large specimens, are fluted at the base. Some attain a greater height; one which I noted was fully 250 feet, and measured 11 feet in diameter at 5 feet from the base.

In the same situations and altitude *Magnolia Campbellii* grows in large numbers, and a specimen, that with the whitish bark, is shown on the left side of the picture. I shall always remember my first sight of a group of these magnificent *Magnolias* in bloom. I got within two miles of them, from which distance the masses of pink colouring showed up distinctly, but, surrounded as they were by heavy snow-drifts, 10 to 30 feet in depth, it was some weeks before I could reach them, and then the flowering period was almost over. It is said that the species is not hardy in Britain, but I fail to see why this should be, with plants grown from seed obtained at such altitudes and in such a rigorous climate.

THE LICHANG RANGE.—Though this range is amongst the shortest in Western Yunnan, it is one of the most interesting, owing to its chief point being one of the highest peaks in that region. It reaches a height of fully 20,000 feet, carrying about 3,000 feet of perpetual snow. Stretching over more than a degree of latitude, the general trend is N.E. by S.W. This stupendous bulk interrupts the course of the River Yangtze, turning it abruptly to the N.E. for about 70 miles, where, at the end of the range, it again returns to its southerly course, thus forming a large, semi-elliptical loop, which is known to those interested in the geography of the region as the "Big Yangtze Bend." On the N.W. face the slopes of the range descend abruptly to the river bed, a drop of about 15,000 feet. The slopes are, for the greater part, covered with heavy Pine forest, with a deep belt of Oak running along the base. On the east, the descent is not so sudden. The country ascends gradually from the southern end of the Lichang Valley to an altitude of 9,000 feet, but this face is much more rugged, wild and picturesque, being built up of a series of ladder-like precipices with very broad, timber- and scrub-covered ledges. The latter were probably formed by denudation and gigantic landslips.

Right in the centre tower the two needle-like pinnacles forming the main peak, one of, if not the most, imposing sights amidst the superlative grandeur of the highlands of Yunnan, and, during the dry season, the dominant feature over a radius of nearly 200 miles. During the rainy season the summit is seldom visible, being swathed in dense mist and rain-clouds, but in the intensely dry, rarefied atmosphere of the winter season, with the virgin white of the peaks standing out in all their dazzling purity against the deep blue of the sky, the beauty of the scene is indescribable. On the N.E. flank of the main peak, and arising from a cup-shaped depression formed by the two peaks, is a magnificent glacier; it descends for 4,000 to 5,000 feet, where it has a face of fully half a mile.

The basis of the whole formation is limestone; in fact, one might safely say it is purely so. The basin at the base forming the upper portion of the Lichang Valley is composed of heavy lacustrine deposit, the Lichang Valley having at one time been the site of an extensive lake, which, judging from the strata, was fully 12 miles

in length. The formation in the centre is of great depth, a stream which occupies the middle having worn a gutter of 150 feet in depth without having cut completely through it. This part at all seasons is more or less barren, bearing only a few species of grasses, two species of *Berberis*, two dwarf *Anemones*, and a few large patches of *Spenceria ramalana*. On the banks of the stream the vegetation is much more luxuriant, species of *Berberis*, *Philadelphus*, *Deutzia*, *Clematis*, *Lonicera*, &c., growing in profusion. Most prominent amongst the herbaceous flora are *Primulas*—*Poissonii*, *denticulata*, *Beesii*, *pulchella*, and *Forrestii*; a very dwarf form of *Incarvillea grandiflora* var. *breoipes*; a few *Anemones*, *Senecios*, and other *Compositæ*.

The lower slopes of the range are covered with two dwarf species of evergreen Oak, used extensively by the inhabitants for converting into charcoal, and Pines, the deep side valleys holding the most interesting flora. There are shrubs in endless variety, with the ledges of the cliffs and surfaces of the boulders clothed with masses of *Primulas*, *Saxifrages*, beautiful *Crucifers*, several species of *Meconopsis*, amongst others the beautiful *Meconopsis Delavayi*, *Meconopsis rudis*, and two new species, several magnificent new species of *Cremanthodiums*, *Anemones*, *Gesneras*, *Chrysospleniums*, *Senecios*, and numerous representatives of other genera.

The Pine belt proper commences at about 10,000 feet, and extends as high as 12,000 to 13,000 feet, where it gives place to *Rhododendron* forest and scrub; whilst above that again, and up to the limit of perpetual snow at 16,500 to 17,000 feet, is Alpine pasture.

Along the Pine belt at intervals there are large, sheltered openings, covered with rich, limy pasture; these are, floristically, the "creme de la creme" of the range. There are found huge masses of the finer *Primulas*, such as *vinciflora*, *vittata*, *secundiflora*, *amethystina*, *cortusoides* var. *lichiangensis*, *yunnanensis*, *membranifolia*, and the finest and most luxuriant form of *Forrestii*; also several species of *Androsace*, the finest being *spinulifera*; many fine and new *Codonopsis*; several new species of *Cyananthus*, amongst them being one with the habit of *Cyananthus incanus*, but with large canary-yellow flowers; also quite a number of *Liliums*, amongst them the beautiful *Lilium lophophorum*, and a host of other rare and interesting species.

In the Alpine pastures are many Alpine forms of *Primula*, with innumerable *Gentians*, *Corydalis*, *Anemone*, *Meconopsis*, the species *integrifolia* being in abundance. *Compositæ* is again largely represented by the genus *Cremanthodium*, with several fine and brilliantly-coloured species of *Lactuca*, a few dwarf *Senecios*, two or three species of stunted *Willows*, and a number of the smaller and hardier *Rhododendrons*. Terrestrial *Orchids* are in abundance, amongst them being the beautiful *Cypripedium tibeticum* and *C. margaritaceum*.

The last two plants found were two unique new species of *Saussurea*; these were several hundreds of feet beyond the limit of even the hardiest grasses, growing on limestone rubble in the shelter of boulders, one at 16,500 feet and the other a couple of hundred feet higher. Both species were densely hirsute, so much so as to resemble at a short distance balls of loose cotton, inflorescence foliage and stem being completely hidden. Above this point was a frost and snow-bound chaos of limestone boulders and pinnacles.

What I consider the finer situations on the range, viz., the immense flower-clad ledges which I have already mentioned, I had to leave almost entirely unexplored, finding most of them quite inaccessible. To botanise some of them one would require a flying machine, or some more practical plan than I had. Certainly, for anyone who can overcome the natural difficulties, there is an exceptionally rich harvest in store. I found it most tantalising, for, in many situations, viewed from above, I could distinguish large

masses of rich colouring, representing what were probably horticultural and botanical gems. However, they will undoubtedly be added to our collections in the near future.

The Supplementary Illustration, though it shows but a very small portion of the range, gives an admirable impression of the scenery. G. Forrest, s.s. "Irrawaddy," Rangoon.

FRUIT PRODUCTION OF THE BRITISH EMPIRE.*

(Concluded from page 187.)

Fiji.

The published statistics of Fiji are very meagre; the acreage under fruit and the production are not obtainable. The export trade, however, consisting mostly of Citrus fruits, was valued in 1907 at £97,678.

NEW ZEALAND.

New Zealand is not, comparatively speaking, a country where orcharding has attained large dimensions. Indeed, it does not produce sufficient for the needs of its own population. It is a country of many climates, and hardy fruits grow abundantly in certain places. In the North Island Citrus fruits, such as the Orange, Lemon, &c., grow well, and the industry is capable of considerable extension.

AUSTRALIA.

Victoria, during the year 1908, produced 2,509,965 bushels of large fruits, 24,489 bushels of small fruits, 561,679 bushels of Grapes, and 121,000 lbs of nuts; also 1,437,106 gallons of wine, of a total value of £655,474. The principal crop was 1,241,826 bushels of Apples.

New South Wales.—This State, in 1907-8, produced 3,879 tons of Grapes and dried fruit, 12,957,216 dozen of Citrus fruits, 778,500 gallons of wine, and 28,387 gallons of brandy, of a total value of £523,910. Citrus fruits were the principal crop.

South Australia.—In 1906-7 the State sold 26,369 cwt. of Grapes, and made 2,441,504 gallons of wine, 39,404 cwt. of Raisins and Currants, produced 311,538 cases of Apples, 141,150 cases of Oranges, 37,378 cases of Lemon, and 16,164 gallons of Olive oil.

Queensland.—In 1908 this State produced 4,239,980 lbs. Grapes, 1,651,163 bunches Bananas, 593,794 dozen Pineapples, 440,312 bushels Oranges, 77,698 gallons wine. The value of the Grapes and other fruits was given at £399,754.

Western Australia.—Fruit-growing in this State is at present in its infancy, the principal crop being Grapes, of which 90,187 cwt. were produced in 1907, from which 153,755 gallons of wine were made.

Tasmania.—The smallest State in the Commonwealth of Australia is pre-eminently an Apple-growing country. The production of Apples was 1,070,546 bushels for the year 1908-9. Pears are a bad second at 71,306 bushels, and of small fruits 3,110 tons were produced. The export value of fruits for that year was well over £300,000 sterling.

Australia is peculiar, inasmuch as, having large areas of fruit-growing country, it has few indigenous fruits. The flourishing orchards and plantations are the results of enterprise and acclimatisation. In Queensland are grown in abundance sub-tropical fruits, and there is a considerable export trade in Pines, Bananas, &c., to the sister States. As we come further south, to New South Wales, Victoria, and South Australia, we find large orchards, vineyards, and groves of more temperate varieties, such as Citrus and stone fruits. The harder varieties, viz., Apples, Pears, Plums, Peaches, &c., are mostly to be found in Victoria, South Australia, and Tasmania.

Viticulture has, during the past few years, attained great importance, and there are now over 60,000 acres under vines, producing Grapes for the table, and in 1907-8 4,450,000 gallons of wine.

As examples of what capital and enterprise can perform, we have the irrigation colonies of Mildura, in Victoria (already referred to), and

* Extracts from a paper by Dr. Jno. McCall, Agent-General for Tasmania, read before the Royal Society of Arts on March 1.

Renmark, in South Australia. The scientific application of water has converted dry wastes into orchards and vineyards, each a centre of considerable population, and annually adding largely to the prosperity of the community. Victoria and South Australia produced, in 1907-8, 13,800,000 lbs. of dried Raisins and Currants. The importance of the orchard industry in Australia may be gauged by the value of the production of fruits (other than Grapes) for the year 1907-8, when it reached the satisfactory figure of over a million sterling. Apples are the principal fresh fruit exported from the Commonwealth, the bulk coming from Tasmania. The export from that State to Europe last year numbered about 360,000 cases; this coming season we hope to send between 500,000 and 600,000 cases.

In the northern part of Australia where, at the present moment, settlement has been hardly commenced, we have a large area suitable for all kinds of tropical agriculture. The Chinese gardeners have already demonstrated this, for they have succeeded in growing the very finest Pine-apples. The Pawpaw Apple grows luxuriantly all over the place, and Limes, Oranges, the Mango stem, Coconut, Banana, Passion fruit, and Mulberries flourish equally well. When this northern territory is developed and connected by rail with other parts of Australia, and when the magnificent harbour at Port Darwin is more generally used, the fruit production of Australia will attain dimensions which will far exceed the present fruit production of the whole Empire.

UNITED KINGDOM.

No figures are obtainable as to the production of fruit in this country. In 1908 there were under fruit cultivation 172,751 acres of Apples, 9,604 acres Pears, 11,868 acres Cherries, 15,683 acres Plums, 28,815 acres Strawberries, 9,323 acres Raspberries, 26,241 acres Currants and Gooseberries, and 60,892 acres of other kinds. Of this acreage of 335,177, it appears that 27,433 acres of small fruits were grown in the large fruit orchards, leaving a net acreage of 307,744 under fruit cultivation. The industry in this country is growing, and the year 1908 shows an increase of 2,826 acres over the preceding 12 months. That it is capable of considerable extension in the United Kingdom is borne out by the fact that over 4,600,000 cwt. of fruit, valued at over £3,750,000, were imported into this country in 1908. These figures do not comprise the total imports of fruit, but only of those varieties which are grown also in the United Kingdom.

The fiscal policy of this country, together with the fact that the railways are privately owned, and therefore run on commercial lines, and, further, that cheap water carriage is available for the transport of fruit from the countries competing in the open markets here, offer no prospect of success to the growers of certain classes of fruit in this country, and, therefore, the increase in production is not likely to be at all great in the class of fruit suitable for long-distance transport by water. I am informed that Apples can be placed in London from countries thousands of miles away at a lower cost than they can be brought by rail from the fruit-growing districts of England to the great consuming and distributing centre at the heart of the Empire—the City of London.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE LATE MR. MCINDOE.—I was very sorry to read in your issue of last week the account of the death of one of my oldest horticultural friends and the serious illness of another. I allude to the late Mr. J. McIndoe and to Mr. William Denning. It was in 1873 I first met Mr. McIndoe, he being at that time gardener to the late Archbishop Thompson at Bishopthorpe, York. In 1874 he went to re-lay out and develop the gardens at Hutton Hall, Guisborough, for the late Sir Joseph Pease, where he remained for nearly 30 years and established his reputation as a grower and exhibitor of fruits generally. I sent you some notes of his gardening career about the time he left Hutton. My acquaintance with Mr. William Denning began in 1866. At that time he was sent by his then employer, the late Lord Bolton, Bolton Hall, Bedale, to look

out a likely man from Messrs. J. Veitch & Sons' Chelsea Nursery, to act as gardener at Hackwood Park, in Hampshire. The present writer was chosen, and went on May 5. Two years afterwards Mr. Denning came to take charge of the gardens at Grimston Park, Tadcaster, for the late Lord Londesborough. His predecessor was the late Mr. John Richards, father of Mr. J. Richards, of XL-All fame. At that time Orchids in flower were sent regularly to the R.H.S. meetings at South Kensington in a specially-built van, which at that time, was regarded as an innovation. In 1872 the Grimston estate was sold to the late Mr. John Fielden, of Dobroyd Castle, Todmorden, who requested Mr. Denning to remain as his gardener, but as Mr. Denning was about to lay out an extensive new produce garden at Kingston for Lord Londesborough he declined the offer. He was then asked to name a likely man, and the present writer was engaged in October, 1872. Mr. Denning began his gardening career at Grimston about 1849 or 1850 under a Mr. Tester, his father at that time having charge of the woods and plantations, coming to Grimston from the Denbies, in Surrey, when the first Lord Londesborough in the late 'forties purchased the estate from Lord Howden. After gaining experience at Tortworth Court, Patshull, and other places, he went as gardener to Lord Bolton in the early 'sixties. *Henry J. Clayton*

BORDEAUX MIXTURE.—Although the value of Bordeaux mixture was demonstrated in France as long ago as 1882 the readers of the *Gardeners' Chronicle* were put in possession of its value long before it came into general use in this country as a fungicide. For in the issue, April 4, 1891, p. 436, fig. 93, is shown its effect from a photograph from France on the Potato disease, the result of an experiment by M. Aimé Girard. *Charles B. Plowright, M.D., Sun Dial Cottage, North Wootton, March 18.*

THE TALLEST TREES IN THE WORLD.—At p. 69 of the present volume of the *Gardeners' Chronicle* are some figures and facts concerning the reputed tallest trees in the world, collected by me from the most reliable authorities in Australia and America, where the tallest trees undoubtedly exist. According to the most trustworthy evidence there brought forward, America can claim possession of the tallest trees; but further researches have revealed the fact that there is still some uncertainty as to the species, though first position is generally accorded to the Big Tree or Mammoth Tree of California, *Sequoia gigantea*, otherwise *S. Wellingtonia*, the earliest combination under the adopted generic appellation. Relying on Professor Sargent, who states in his *North American Silva* that "this is the largest inhabitant of the American forests, though not the tallest tree in the world," I did not carry my investigations concerning American trees beyond this positive statement. It will be understood from the wording of the quotation, that at that date Sargent accepted the measurements of Australian Eucalypti, which, as I have shown, on the authority of Prof. A. J. Ewart, in the place cited, are quite unreliable and greatly exaggerated. Since I wrote the paragraph on p. 69 a most interesting and valuable paper, by Mr. E. H. Frothingham, of the United States Forest Service, on the Douglas Fir, has come under my notice. Respecting the dimensions of this tree the author says: The height-record is attained by the coast form of the Douglas Fir, whose height, as well as that of the Redwood, *Sequoia sempervirens*, reaches 380 English feet, or 125 metres.* This exceeds Sargent's greatest authenticated height (325 feet) of the Big Tree by 55 feet. Turning again to Sargent's *Silva*, he describes the Douglas Fir as often 200 feet high, and frequently much taller, adding that he had not been able to obtain any reliable information of the maximum height, but thought the existence of individuals exceeding 350 feet probable. His maximum authenticated height of the Big Tree, I may repeat, is 325 feet. Again, in his account of the Redwood Tree (*Silva*, vol. x.), he states (p. 141) that it is the tallest American tree, attaining 350 feet, the tallest actually measured being 340 feet high. He further adds that it may occasionally reach 400 feet or more. Then (p. 143) he remarks of the Redwood that among American trees it is

* There is evidently a misprint here, as 380 feet = 115.8 metres, and 125 metres = 410 feet.

exceeded in size by the Big Tree only! From the context there is no doubt that by size, height is meant, and not merely dimensions of the trunk. These statements are contradictory and confusing, and between ascertained and conjectured heights the question which is the tallest tree in the world—the Big Tree, the Redwood, or the Douglas Fir—is still unanswered. *W. Botting Hemsted.*

PERPETUAL-FLOWERING CARNATIONS.—The unconditional recommendation by Mr. White (p. 162) to stop this class of Carnation at the second joint, when the plants have attained to 7 inches high, will not be likely to find many adherents among professional growers. To wait until a young Carnation plant reaches 7 inches high and then cut it down to within an inch of the soil is a sacrifice both of time and plant. Moreover, it is unnecessary. If we take three well-known Carnations, say, Enchantress, Britannia, and White Perfection, we find that in a good type of the cutting-raised plants, there are, often enough, six or more joints within 2 inches of the soil, hence it would savour of wanton destruction to cut such a plant as recommended; my remarks apply to plants raised from joint-made cuttings, short and sturdy. The "heel" cutting is of a somewhat different type and, below the line of full-leaf production, has an attenuated base, the young plant not infrequently elongating rather quickly in the early stages. Such as these require a somewhat different treatment, while those varieties of the dwarfest habit require to be treated separately. There is a type of cutting, however, that requires to be dealt with more severely than the rest. This is the late autumn-struck cutting, which not infrequently bolts into flower in the earliest days of spring. In such a case, every care should be taken to ensure that the stopping is made below the line of flower-bud production, otherwise all subsequent breaks from the uppermost joints will be of the abortive flower-bud type. With such as these latter, no mistake will be made if the stopping is done within the limits of the closely-set joints that abound on the first 3 inches or so of the stem of the plant. *E. J. Jenkins*

PRUNING WALL TREES THE FIRST YEAR AFTER PLANTING (see p. 157).—I was looking at hundreds of trained wall trees last week which were being sold from an English nursery; many of the one season's growths were 4 feet long, not coarse shoots but of medium thickness. It is absolutely essential for a quick return that the trees should be pruned the first season after planting. What is required is to obtain the largest area of established tree growth in the shortest space, so that the greatest quantity of fruit can be had from such a tree each year after it is once established, and vigorous growth of the branches with a due regard to the shape and future training of the trees, so that those who follow half a century after have still a fruiting tree to depend upon. The way to obtain such a tree is by vigorous pruning of the shoots the first year after planting, but not so low as 6 inches of their base. Why do we prune the shoots at all, and why does a person cut down a hedge or tree which has become weakly at the base? The object is to obtain a vigorous growth from that part of the bush or hedge which is left. What generally happens to a fruit tree that is left as *H. W. W.* advises? Why, a few weakly shoots pushing from the points of the unpruned growth and many fruit-buds forming on the remainder, the shoots to be developed into blossom the next season, but very little growth such as will cover wall space and give a full crop in a short space. A shoot, if shortened to within, say, 8 or 10 inches of its base, will have sufficient vigour to push satisfactory growth from the base eyes below that point and inducing such growth to become at least 1 foot to 2 and 3 feet long the first year. Such rate of progress will be more satisfactory than that emanating from unpruned shoots even if treated on the bending principle.

ON RETARDING THE BLOOMING OF FRUIT TREES.—I have read with interest Mr. A. C. Bartlett's note (see p. 157) on the paper written by Mr. John Saul, of the Durdham Down Nursery, Bristol, in the autumn of 1850 (nearly 60 years ago), on "Retarding the Blooming of Fruit Trees." In this paper "the writer first draws attention to the fact that, in their native

countries, the Apricot and Peach are subjected to intense heat during the summers, followed by extremely cold winters." I do not think the winters experienced in Florida and the Cape and Natal Colonies (in which the Peach flourishes) can be termed "extremely cold." Mr. Saul is alleged to have "advocated" a stricter adherence to the conditions under which these trees are grown naturally, by retarding their blooming in the spring instead "of hastening it, as is unwittingly done by means of night protection." I may say at once that no practical present-day gardener would protect his Peach trees at night with a view to retarding the flowering period. This is done by withdrawing the nails and shreds from all the young fruit-bearing shoots of the Peach and Nectarine trees early in January in order to allow them to hang out free from the influence of the sun-heated walls, the main branches being allowed to remain in their summer positions secured to the wall. When the flower-buds begin to swell, the necessary thinning and pruning back of the branchlets are attended to, and the shoots are then rearranged in position on the wall. Meanwhile, the canvas protection with coping-boards, referred to on p. 132, is fixed in position, and brought into use at night as soon as the flowers begin to open. The canvas is taken down when the blossoms have set their fruits, and stored for future use. The canvas is not drawn from the trees on frosty mornings until the sun has shone thereon. I have used this method of protection for 25 years and have every year secured excellent results. *H. W. Ward.*

FASCIATED LILIUM (see p. 176).—In *L. auratum* fasciation is often seen in its extreme form, while there are recognised varieties of *Lilium speciosum* (*L. lancifolium*, Hort.), in which fasciation has become a permanent feature. There is both a white and a coloured form, which are generally known by the respective names of *album corymbiflorum* and *rubrum corymbiflorum*. Beside this, they are sometimes called *monstrosum* and *fasciatum*. The white variety is, with the exception of the fasciated character, a counterpart of the *album* as grown by the Dutch; that is to say, with dark-tinted bulbs, stems, and flower-buds, whereas Krætzneri, which is often sent from Japan as *album*, has light-coloured bulbs, green stems, and greenish buds, and, except in the case of isolated instances, shows no trace of fasciation. The two varieties above alluded to as *album corymbiflorum* and *rubrum corymbiflorum* are less vigorous than the other forms, the bulbs showing a great tendency to split up into small crowns, from each of which a flowering stem is developed. With the energy of the bulb thus divided between several stems, it is not surprising that many of them reach only a height of about 2 feet. The flowers are borne in a confused head or cluster, but though showy at a little distance, a closer inspection reveals the fact that the individual blooms are very irregular, and wanting altogether in the symmetrical shape which forms such a pleasing feature of most of the varieties of *Lilium speciosum*. A quarter of a century ago, when Japanese Lily bulbs were sent to this country in far less numbers than they are now, large quantities were obtained from Holland. Then these two varieties were fairly popular, but they are rarely seen at the present time. The Dutch, however, still retain them in their lists, and sell them at a cheap rate. *W.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 22.—Another very successful meeting took place on Tuesday last, the occasion being the usual fortnightly Show. Visitors were not quite so numerous as on the 8th inst., but at times there was considerable crowding, notwithstanding the Council had erected small notice-boards at each transept directing the visitors in certain directions. Few, however, took notice of these; perhaps they will serve a useful purpose in time to come. The Show was representative of all sections of gardening.

The FLORAL COMMITTEE granted three Awards of Merit, and the ORCHID COMMITTEE one First-class Certificate, four Awards of Merit, and one Botanical Certificate.

No Award was made to a novelty by either the

FRUIT AND VEGETABLE or the NARCISSUS COMMITTEES.

At the 3 o'clock meeting in the lecture-room the fourth "Masters" lecture was delivered by Mr. A. D. Hall, F.R.S., the subject being "The Adaptation of the Plant to the Soil."

Floral Committee.

Present: Henry B. May, Esq. (in the Chair), and Messrs. Geo. Paul, W. J. James, E. H. Jenkins, W. P. Thomson, F. Page Roberts, Charles E. Shea, Wm. Cuthbertson, R. W. Wallace, Arthur Turner, Chas. Dixon, W. Bain, Jas. Douglas, Charles Blick, C. R. Fielder, J. Jennings, J. F. McLeod, Herbert J. Cutbush, W. J. Bean, Wm. Howe, G. Reuthe, T. W. Turner, John Green, James Walker, W. B. Cranfield, E. A. Bowles, Jas. Hudson, H. J. Jones, and Ed. Mawley.

Messrs. JAMES VEITCH & SONS, LTD., Kings Road, Chelsea, showed three distinct groups, each being of exceptional merit. One was composed of several hundred plants of *Primula obconica*. This exhibit demonstrated the great advance that has been made in the size and colour of this *Primula*, besides being an object lesson in good culture. On the table this firm usually occupy they displayed about 100 plants of *Hippeastrum* (*Amaryllis*) in fine bloom, the varieties being of the choicest; also some deep-blue *Cinerarias*, greenhouse *Rhododendrons*, *Streptosolen Jamesonii*, a yellow-flowered *Imantophyllum* (*Clivia*), hybrid *Gerberas*, and other tender plants, in flower. The third group was composed of forced trees and shrubs in flower, such as *Rhododendrons*, *Viburnum plicatum* (very fine), *Cytisus Andreanus*, *Clematis montana rubens*, *Wistaria* and *Veronica Hulseana*. (Gold Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, again showed a bold group of forced shrubs and Azaleas, the display being imposing in appearance and of considerable extent. (Silver-gilt Banksian Medal.)

Messrs. R. & G. CUTBERT, Southgate, staged an imposing group of forced shrubs. Brightly-flowered *Rhododendrons* and Azaleas, *Laburnums*, *Lilacs*, double-flowered Hawthorns, *Viburnum Tinus*, and *Staphylea colchica* were the chief subjects. (Silver-gilt Banksian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, Hertfordshire, staged flowering sprays of trees and shrubs, having small plants of *Choisya ternata* in the foreground, with taller specimens of *Camellias* in the rear. The sprays of *Prunus triloba*, double crimson and double white-flowered Peaches, Almonds, and similar plants were crowded with blossoms. (Silver Banksian Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, showed a bright exhibit comprising an assortment of flowering subjects, such as Azaleas, Acacias, Cyclamens, Ericas, Roses, Carnations, *Chorozema illicifolia*, *Correa magnifica*, *Boronia megastigma*, and *Genista fragrans*. (Silver-gilt Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, staged a batch of *Begonia manicata*, a tall-flowering species with rose-coloured flowers in spray-like inflorescences; also the beautiful *B. rosea gigantea* and *B. Verschaffeltii*. A plant of *Sempervivum Bollii*, in flower, was exhibited in this group.

Messrs. THOS. ROCHFORD & SONS, LTD., Broxbourne, showed a number of plants of *Nephrolepis lycopodioides*, which received an Award of Merit on May 4, 1909; a fine form of *Cyrtomium falcatum* named *Rochfordii*, certificated at the meeting held on May 5, 1907; and *Polypodium glaucum crispum*, which has also received the Society's Award of Merit. The finest culture was seen in these various Ferns. Messrs. ROCHFORD also showed a group of Rambler Roses, the variety *Tausendschön* predominating. (Silver-gilt Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, again showed banks of large-flowered *Clematis* arranged with Ferns in great variety. They also displayed pot plants of *Rose Baby Dorothy*, *Astilbes* (*Spiræas*) and coloured *Primroses*. (Silver Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, N., showed Alpine plants arranged in a natural manner, with ornamental shrubs as a background. Species of *Primula* were a feature, also a great bank of blue, pink, and white Hepa-

ticas, these being very attractive. The most floriferous subject was *Pyrus Scheideckeri*. Messrs. CUTBUSH also staged an excellent exhibit of Carnations. (Silver-gilt Flora Medal.)

Mr. W. H. PAGE, Tangley Nursery, Hampton, contributed, as at the last meeting, a bold group of choice Carnations and Lilliums set in Ferns and Asparagus, with a few golden-coloured Daffodils for relief. (Silver-gilt Flora Medal.)

Mr. H. BURNETT, Guernsey, again contributed a fine collection of Carnations, including magnificent blooms of the variety "R. F. Felton" (see fig. 85). (Silver Flora Medal.)

R. B. LEECH, Esq., Dulwich, was awarded a Silver Flora Medal for some excellent plants of *Anthurium*.

Messrs. FELTON & SONS, Florists, Hanover Square, London, showed vases of Roses, the blooms and the receptacles being exceedingly choice. The varieties of Roses were popular market kinds, the dark-red Liberty being especially good. (Silver Flora Medal.)

Mrs. BISCHOFFSHIEM, Bute House, South Audley Street (gr. Mr. J. Edney), staged a group of pot Roses in bloom, bordered with *Ophiopogon Jaburan*, and set in a group of *Adiantum* Ferns. (Silver Flora Medal.)

Mr. GEO. PRINCE, Longworth, showed blooms of forced Roses, and another display of these popular flowers was made by Messrs. GEO. MOUNT & SON, Canterbury, who had their new yellow variety *Lady Hillingdon* in considerable numbers. (Silver Flora Medal.)

Messrs. JAS. CARTER & CO., High Holborn, again arranged a rock and water-garden exhibit, this time as a corner group. The scheme was well carried out, the water dripping into a pool, with Ferns and Rushes around, whilst the rockwork was gay with seasonable flowers. (Silver Flora Medal.)

Messrs. G. and A. CLARK, LTD., Dover, showed Alpine plants arranged in rockwork with a few shrubs for a background. *Ranunculus nyssanus* is like a big Buttercup and is very free in blooming. There were also some choice *Polyanthi* in a variety of colours. (Silver Banksian Medal.)

Messrs. R. H. BATH, LTD., The Flora Farms, Wisbech, showed a great assortment of bulbous flowers grown in bowls and vases in moss-fibre without drainage.

Messrs. GILBERT & SON, Bourne, Lincolnshire, showed a group of Anemones, in which the beautiful King of Scarlets variety quite eclipsed all others.

Mr. FRANK LILLEY, Guernsey, showed Daffodils in assortment, all gathered from the open, most of them of the kinds grown for Covent Garden Market. In the centre of the group were other spring flowers, including *Crocuses*, *Anemones*, *Scillas*, *Muscari*, and *Lachenalia*.

Messrs. R. GILL & SONS, Tremough, Penryn, Cornwall, again showed trusses of *Rhododendrons*. The group included a specimen of *Cordylina indivisa vera*, the New Zealand Toi. (Silver Banksian Medal.)

Messrs. GEO. JACKMAN & CO., Woking, staged an attractive exhibit of Alpine and hardy garden flowers. *Androsace carnea*, *Adonis amurensis flore pleno*, *Lithospermum prostratum*, and a double white *Primrose* attracted our notice. (Silver Banksian Medal.)

Messrs. T. S. WARE, LTD., Feltham, Middlesex, showed choice and rare Alpines arranged on a rock garden. Very fine were *Shortia uniflora grandiflora*, *Primula viscosa nivalis*, *Epipaea repens*, *Soldanella Clusii*, and *Saxifraga ciliata*. (Silver Banksian Medal.)

Messrs. BAKERS, Wolverhampton, staged a pretty group of Alpines, amongst which batches of *Primula rosea*, *P. Cashmeriana*, and *P. Mrs. J. H. Wilson* were very good.

Messrs. PAUL & SON, Cheshunt, were awarded a Silver Banksian Medal for an exhibit of *Rhododendrons*.

Other exhibitors of Alpine and hardy plants were the Misses HOPKINS, Mere Gardens, Shepperton; Messrs. BARR & SONS, King Street, Covent Garden, London (Silver Banksian Medal); Messrs. JOHN PEED & SON, West Norwood, London—this firm showed a very large group of *Lachenalia luteola*, with the spotted type of leaf; Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley; GUILFORD HARDY PLANT NURSERY; and Mr. GEO. REUTHE, Keston, Kent.

Messrs. JARMAN & CO., Chard, showed plants of their strain of Cactus-flowered *Cineraria*.

Messrs. S. BIDE & SONS, Alma Nurseries,

Farnham, showed bunches of Violets of the Princess of Wales variety.

Messrs. CARTER, PAGE & Co., 52 and 53, London Wall, London, showed varieties of Violas and large blooms of Pansies, also the beautiful blue *Nemophila insignis*, *Linaria maroccana*, *Nemesia strumosa*, *Schizanthus* and other annuals.

AWARDS OF MERIT.

Carnation "R. F. Felton."—See fig. 85 and p. 196; shown by Mr. H. BURNETT.

Calathea crocata.—This stove plant is well known in gardens, but it is seldom seen in such excellent condition as the admirable specimens shown by Sir TREVOR LAWRENCE. Each plant was about 9 inches high, and had reddish-orange inflorescences. The leaves are rather undulate, being dark green above and rose-purple beneath. The species was introduced from Mexico in 1874, and is figured in *Bot. Mag.*, t. 7820. Shown by Sir TREVOR LAWRENCE (gr. Mr. Bain).

Rhododendron primulinum.—A hardy species grown and flowered at Coombe Wood Nursery from seed collected in Western China by Wilson. The plant is described in *Gardeners' Chronicle*, January 1, 1910, p. 4. Shown by Messrs. JAMES VEITCH & SONS, LTD., Chelsea.

Narcissus Committee.

Present: H. B. May, Esq. (in the Chair), and Messrs. Robt. Sydenham, P. D. Williams, Alex. M. Wilson, Geo. H. Engleheart, J. T. Bennett-Poë, F. H. Chapman, E. A. Bowles, Christopher Bourne, Joseph Jacob, Chas. Davison, P. Rudolph Barr, James Walker, W. Poupart, Arthur R. Goodwin, R. W. Wallace, and Chas. H. Curtis.

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, again showed a beautiful display of Narcissi of choice varieties. Amongst notable kinds were Southern Star, Cirlet, Aspasia, Leyden Jar, Glory of Noordwijk, Mrs. H. J. Veitch, Lucifer, Orangeman, White Lady, Ariadne, Weardale Perfection and Waterwitch. (Silver-gilt Banksian Medal.)

Messrs. SUTTON & SONS, Reading, made an attractive exhibit with Tulips. They arranged them in batches of distinct varieties, including white, yellow, red, scarlet, rose, cream, and other shades. (Silver Flora Medal.)

Messrs. ROBERT SYDENHAM, LTD., Tenby Street, Birmingham, again showed bulbous plants grown in bowls of moss-fibre. They had also a selection of Narcissi of the best sorts. Chantecleer is new, being of the parvi-cornati section with deep orange-red crown; Cavalier is also new and of the same type; Persian Orange, Mme. de Graaff, Northern Queen, and Mrs. Langtry were also shown well.

Mr. ALEX. M. WILSON, Bridgwater, Somerset, showed a small collection of Narcissi, several being seedlings. One, marked R.H., had a magnificent "eye," the colour being deep reddish-orange set off by a well-formed perianth. Tamerlane is a bold flower, the yellow segments being very broad. (Silver Flora Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, staged varieties of many types of Narcissi, having good flowers of varieties that force well. Fire Dome is a new variety; it belongs to the incomparabilis section, and the cup is an inch deep and rather more than that wide; the colour at the edges is a very deep orange, passing to a paler shade at the base. Seraphim is one of the largest of the bicolors, with sulphur trumpets and cream perianth; Peter Barr, Home-spun, King Alfred, Fairy Queen, and other standard sorts were noticed. (Silver Banksian Medal.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O' Brien (hon. sec.), Harry J. Veitch, Talbot Clifton, F. Menteith Ogilvie, F. Sander, W. Boxall, A. Dye, A. A. McBean, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, W. P. Bound, W. H. White, H. A. Tracy, H. Ballantine, Gurney Wilson, J. Wilson Potter, W. Bolton, R. Brooman White, C. H. Curtis, and de B. Crawshaw.

Messrs. SANDER & SONS, St. Albans, staged a fine group, which contained several rare species, the best novelty being the new *Houlletia Sanderi* (see Awards). In the centre were three plants of

finely-coloured *Vanda cœrulea*, and around these were good forms of *Cattleya Schröderæ*, one of blush-white, with orange throat, being specially attractive. Good hybrid *Odontoglossums*, including a large, light form of *O. harvengtense*, *Brasso-Cattleya Madame Jules Hye*, and other *Brasso-Cattleyas*; the yellow *Dendrobium bellatulum*, *D. Brymerianum*, with finely-developed fringe on the lip; *Scuticaria Hadwenii*; a selection of *Lælio-Cattleyas*, *Cymbidium Schröderianum*, *Phalænopsis Luddemanniana*, *Renanthera Imschootiana*, *Dendrobium callipes majus* from a new district, the strong growths bearing erect spikes of showy yellow flowers, four or five on each; various *Erias*, *Epidendrums*, &c. (Silver Medal.)

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a very attractive group, rich in good hybrids. Among the home-raised seedlings, a new and grandly-coloured *O. crispum*, raised between a rose-tinted blotched form, and the fine *O. crispum* Louis Sander, and now flowering for the first time, displayed great beauty in its darkly-blotched flower. At one end was a selection of showy *Lælio-Cattleyas* and *Brasso-Cattleyas*, *B.-C. Cliftonii* being one of the best and *L.-C. Hypatia*, with a bouquet-like spike of 12 copper-orange flowers with crimson lip. Among the *Odontoglossums*, *O. amabile* Mosaicum, *O. Persephone*, *O. Thompsonianum*, and a finely-coloured *O. Lambeauanum* were noted; also *Odontodia Bradshawii*, *O. Vuylstekeæ*, and *O. Bohnhoffiæ*, with their bright scarlet tints; *Cymbidium eburneo-Lowianum* concolor, of an uniform cream colour; *Cattleya Trianæ* Mafeking has a charming flower with claret-red tips to the petals and a finely-coloured lip. Of rare species, *Cypripedium glanduliferum*, *Bulbophyllum barbigerrum*, and *Vanda Bensonii* were noted.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Flora Medal for an excellent group containing great variety, and including many pretty species, among which were noted *Cirrhopetalum Mastersianum*, which freely produces its umbels of coppery-orange flowers; *C. picturatum*; a fine specimen of *Bulbophyllum cupreum*; *Maxillaria sanguinea*, with prettily-marked flowers, the base of the labellum being carmine-red; *Pholidota chinensis*; and the dark-coloured *Odontoglossum cordatum* Low's variety, with two spikes. Among a good selection of *Dendrobiums* was the best white form of *D. crassinode* album; also a selection of *Cymbidium insigne* (Sanderi), including a magnificent form, which has the peculiarity of producing an arching inflorescence. Others noted were the white *Cattleya Dusseldorfei* Undine, the scarlet *Odontodia Bradshawii*, and *O. Keighleyensis*, a fine *Lycaste plana* with 12 flowers, a selection of *Dendrobium Jamesianum*; several specimens of *D. Venus*, very strongly grown and flowered; and a dark-flowered *Cymbidium Lowgrinum*.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Flora Medal for an effective group of exceptionally good Orchids, the centre being of *Cymbidium insigne*, around which were some good *Cattleyas*, the best noted being *C. Trianæ* Edgar Knight (a fine flower, with a claret blotch on the petals, and deep claret-red lip), *C. T. Mrs. T. M. Crook* (with silver-white sepals and petals delicately tinged with lavender, the front of the lip being bluish-lilac), and *C. Schröderæ* Mrs. J. Marshall (a fine flower, of a French-white tint, with orange disc to the lip). At one end was a selection of *Brasso-Cattleya Digbyano-Schröderæ*, and others noted were *Dendrobium Wardianum ochroleucum* (clear white, with orange disc to the lip), *D. xanthocentrum*, *D. pallens*, *D. nobile virginale*, the best form of *Lycaste Skinneri alba*, and *Cypripedium aureum* Surprise.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), showed a very interesting selection, including the rare lemon-yellow *Bulbophyllum Sillemianum*, the pretty *Polystachya pubescens* (with two spikes of yellow flowers), *Dendrobium teretifolium* (with many elegant sprays of white flowers), *Pleurothallis Grobyi*, *Megacalinium falcatum* (with 12 spikes), *Cirrhopetalum picturatum*, *Cœlogyne lactea*, and other pretty species. The hybrids included *Odontoglossum Thompsonianum* Gatton Park variety (see Awards), *Dendrobium Gatton Yellow* (a clear yellow flower, with dark eye), and an interesting selection of Gatton hybrids of *Diacrium bicor-*

nutum, including *Dia-Cattleya Colmanii*, *Epi-Diacrium Colmanii*, and *Brasso-Diacrium Colmanii*, chiefly with white flowers. *Cattleya Schröderæ* Gatton Park variety was also shown, with a glowing reddish-orange disc to the lip.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed *Dendrobium Dalhou-nobile* in fine form, with flowers as large as *D. Wardianum*; *Lycaste Mantinii*, a hybrid of *L. Deppei*, with cream-white flowers, prettily marked with dark rose; the pretty hybrid, *Lælio-Cattleya Cooksoniæ*, and several others, for which see Awards.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed *Sophræ-Lælio-Cattleya Olive* (*S.-L. Psyche* × *C. Enid*), with flowers of good size and of a bright magenta-rose colour, together with flowers of both the parents.

Lord ONSLOW, Clandon Park, Clandon, Surrey, exhibited a specimen of *Dendrobium Wardianum* album.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for an effective group of fine forms of typical *Odontoglossum crispum*. With them were several good *Cattleya Schröderæ*, one especially good variety bearing seven flowers of a lilac-pink tint, the lip having a purple blotch in front of the yellow disc. Others noted were *Miltonia Phalænopsis* with four flowers; a good blotched *Odontoglossum crispum*, *O. Wilckeanum*, *Cypripedium Ettyi* (*Godefroya* × *insigne*), a cream-white, finely-blotched flower; and the new *Odontoglossum Gladys* var. *H. W. Cheal* (see Awards).

Mr. A. W. JENSEN, Lindfield, Haywards Heath, showed a selection of his excellent importation of *Cattleya Schröderæ*, the flowers varying from white to pale rose, with deep orange disc to the lip, several having the fronts of the labellums of a deep-purple tint. With them were some good forms of *Cattleya Mendelii* and *Odontoglossum crispum*, one form of which was tinged with pale yellow.

Messrs. J. CYPHER & SONS, Cheltenham, showed a group of *Dendrobiums*, including *D. nobile giganteum* Berkeley's variety, a very distinct and handsome form distinguished by the purity of its white ground colour and the dark and rich colouring; *D. nobile Ashworthiæ*, a distinct, light form; the true *D. rubens grandiflorum*, still one of the best hybrids; *D. Schneiderianum*, the yellow *D. Melpomene*, *D. Luna*, *D. nobile* Heathii, and others.

FERGUS MENTEITH OGILVIE, Esq., Oxford (gr. Mr. Balmforth), showed a spike of the yellow *Odontoglossum triumphans aureum*, well representing this rare form, from the late Dr. Smee's collection.

A. HARRISON, Esq., Lyndhurst, Watford, showed *Dendrobium Wardianum* and *D. nobile*.

Mr. W. H. YOUNG, Mercury Nursery, Romford, sent a light form of *Cypripedium villosum* annamense, with white margin to the dorsal sepal.

W. BOLTON, Esq., Warrington, showed flowers of a batch of *Cypripediums* between *C. Maudia* and *C. Charlesworthii*, showing extraordinary variation.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Robert de Warrin Westonbirt variety (Schilleriana × *Schröderæ*), from Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A magnificent *Cattleya*, and one of the largest and finest in form of any yet raised. Sepals and petals are rose-pink, the large and finely-displayed lip being pure dark rose in front, the crimped margin lighter in tint. The original form of this very beautiful flower, which secured an Award of Merit, was also shown.

AWARDS OF MERIT.

Lælio-Cattleya Trimyra (C. Trianæ × *L.-C. Myra*), from Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White). A good yellow flower, in size and shape equal to *Cattleya Percivaliana*; there were three blooms on the spike. With two crossings with the rose-tinted *C. Trianæ*, it is remarkable how the yellow of *L. flava*, coming through *L.-C. Myra*, should have been deepened, and the colour of *C. Trianæ* obliterated, as seen in the new variety.

Odontoglossum Thompsonianum Gatton Park variety (*Edwardii* × *crispum* *Mary Colman*), from Sir JEREMIAH COLMAN, Bart. (gr. Mr. Collier). An improved form, with violet-purple segments tipped and margined with pale rose.

Houlletia Sanderi, from Messrs. SANDER & SONS, St. Albans.—A remarkable species of the section intermediate between *Houlletia* and *Peristeria*, the individual flowers bearing some resemblance to those of the Dove Orchid (*Peristeria elata*) and the growth to *Houlletia Brocklehurstiana*. Scape very stout and erect, one 9 inches, the other 1 foot, and bearing two and three inverted flowers respectively; the sepals are hooded over the lip; cream-white, with yellow at the base of the large, fleshy lip.

Odontoglossum Gladys var. *H. W. Cheal* (*cirrhosum* × *crispo-Harryanum*), from Messrs. J. & A. McBEAN, Cooksbridge.—A very bright and attractive hybrid, with white flowers tinged with canary yellow at the margins, and bearing very dark purple blotches, especially on the sepals.

BOTANICAL CERTIFICATE.

Polystachya bracteosa, from Sir TREVOR LAWRENCE, Bart., K.C.V.O.—A curious species from tropical Africa, with flattened pseudo-bulbs and racemes of pale-greenish flowers with reddish markings.

CULTURAL COMMENDATION.

To Mr. W. H. White, Orchid grower to Sir TREVOR LAWRENCE, Bart., K.C.V.O., for *Sarcophilus Hartmannii*, with four spikes of pretty white flowers, and which had been in the collection at Burford for about 30 years.

Fruit and Vegetable Committee.

Present: George Bunyard, Esq. (in the Chair), and Messrs. Jos. Cheal, W. Bates, Alex. Dean, E. Beckett, H. Parr, H. Markham, J. Davis, James Vert, G. Reynolds, Chas. Foster, P. C. M. Veitch, Geo. Wythes, Owen Thomas, H. Somers Rivers, John Lyne, W. Poupert, C. G. A. Nix, A. H. Pearson, and G. Hobday.

Prior to the consideration of ordinary business, Mr. O. Thomas, V.M.H., proposed a vote of sympathy with the members of the family of Mr. J. McIndoe, V.M.H., whom he characterised as a great gardener, and one of the most eminent of British fruit-growers. In not less kindly terms Mr. G. Wythes, V.M.H., seconded the proposition, which was also cordially supported by the Chairman, and was carried in silence.

Messrs. SUTTON & SONS, Reading, staged a collection of some 50 dishes of early vegetables, including some capital salads. The entire collection was of high-class quality. Their Early White Broccoli was shown in perfect form, many of the heads being almost white. All had been cut from a seed stock grown in an open field. They also showed Early Purple and White Sprouting Broccolis of high excellence, especially the white form, which seemed the ideal sprouting variety. There were also two baskets, each holding 12 heads of that very early, firm-hearting Cabbage Harbinger, of perfect form, and three dishes of Pea Duchess of York. The exhibit also included four dishes of Tender and True climbing Bean, showing its fitness for forcing, two baskets of 20th Century Mushrooms, Potatos Sutton's Seedling and Satisfaction. Cucumber Delicacy, Winter Lettuces, Endives, blanched Chicory, Seakale, Rhubarb, Tomato Early Market, Mustard and Cress in boxes, and young Onions. (Silver-gilt Knightian Medal.)

Messrs. JAS. VEITCH & SONS, Chelsea, showed a lesser collection of similar vegetables, including numerous Cabbage Lettuces Paris Market, Early France, White Passion, Early Favourite, Heartwell, and Golden Queen, the last-named being very dwarf; also Borecole New Sprouting with partially curled leafage and very dense heads, and two baskets of variegated Kales, numerous varieties of Radishes, and good Seakale. (Silver Banksian Medal.)

FOURTH MASTERS MEMORIAL LECTURE.

Mr. A. D. Hall, F.R.S., Director of the Rothamsted Experimental Station, delivered the second of the Masters memorial lectures for 1910 at the Royal Horticultural Society on March 22, Professor Bateson, F.R.S., in the chair. In order to obtain some basis of knowledge for the association of given plants with certain soils, the lecturer turned to farm crops, about the requirements of which so much was known experimentally, and began by exhibiting a map showing the distribution of fruit in the counties of Kent, Surrey, and Sussex. A map had been

prepared, on which the acreage of fruit in each parish was indicated by a series of black dots, thus forming together a shading showing the density of planting. Such a map, when considered alongside a geological map of the same district, at once showed that the fruit was congregated on certain formations and absent from others. Moreover, if the soils on which the fruit was found to flourish were subjected to what is called a mechanical analysis, i.e., a separation into groups of particles according to their size, the coarser groups forming sand, the finer silt, and the finest of all clay, we find that they possess constitutions so similar that we can draw up a specification or type of what a fruit soil should be. The analysis of any unknown soil would then show if it agreed with this specification, and, therefore, if it were suitable or not for fruit, supposing that other factors of elevation, aspect, etc., were appropriate. The lecturer exhibited maps showing the distribution of Hops, Turnips, Barley and other crops, which revealed a similar correlation between the crop,

growth has only been determined for a few farm plants, and how that figure is affected by temperature, sunshine, wind and the humidity of the air has not yet been experimentally determined. What, then, is wanted is more experiments and more data. In collecting data, however, the competition factor to which allusion was made in the former lecture must be eliminated, only plants growing under similar conditions of cultivation can be compared.

But though the mechanical composition of soils reveal the chief factor in the association of plant and soil, one or two chemical factors of importance can be discerned. A distinction must be made between acid and non-acid or neutral soils, the acid soils being generally recognisable in nature by the tendency of peat to accumulate on them. It is probable that the plants themselves are indifferent to any acidity of the soil-water from which they are drawing nutrition, but in an acid medium the action of bacteria is generally suspended. In such soils, for example, when the action of the decay bacteria and of those



THE LATE JAMES MCINDOE, V.M.H., WHOSE DEATH WAS ANNOUNCED IN THE LAST ISSUE.

the geological formation, and the structure of the soil as determined by mechanical analysis. Yet farm crops are amongst the least particular of plants, otherwise they would not have received the widespread cultivation by which they are characterised. When dealing with more special and fastidious plants a closer correlation between mechanical composition of the soil and the distribution of the plant would be expected. The importance of the mechanical composition of the soil lies in the fact that upon the size of the particles making up the soil depends such important factors as the supply of water to the plant, the temperature of the soil, and, to some extent, the temperature and humidity of the air surrounding the plant. These are among the most potent factors in the well-being of the crop, as every owner of a greenhouse is aware.

In order to decide upon the kind of soil required by a given plant, empirical methods alone can be followed, beginning by putting together a number of analyses of soils in which the plant does well. *A priori*, it would be impossible to predict what the requirements of the plant will be. Indeed, not enough is known about the requirements of plants under natural conditions: even the amount of water transpired during

causing nitrification are suspended, the soil becomes wholly permeated by the mycelium of various moulds and other micro-fungi. As a consequence of the stoppage of nitrification, plants are driven to feed upon ammonia and other nitrogen compounds to which the micro-fungi gives rise, and many plants appear to be intolerant of such conditions. Again, many classes of plants—certain Ericas, Conifers and Orchids—derive their food supplies from the soil by the aid of the mycelium of certain fungi with which their roots are associated. Such cases of mycorrhiza are associated with acid soils in which nitrates are lacking; probably the mycelium of the special fungi cannot stand the competition with bacteria in neutral or slightly alkaline soil in which bacteria flourish.

The association of acidity or neutrality of soil with particular plants would seem to be an ecological factor worthy of more observation.

The other factor of importance is the amount of carbonate of lime in the soil, but a distinction must be drawn between the cases in which carbonate of lime acts merely as maintaining a neutral reaction and those in which it acts positively, and is of direct benefit to certain plants. Carbonate of lime is regarded as

poisonous to certain plants, e.g., Erica, Rhododendron; but this is probably not a positive injurious action of the lime on the plant, but a secondary one in that the lime removes the acid soil conditions which these plants find necessary. The very distinctive aspect of the chalk and the limestone flora, the prevalence of certain plants only on such areas, e.g., Clematis vitalba, would seem, however, to show that a positive correlation exists between certain plants and an abundance of carbonate of lime. Here, again, more experimental evidence is wanted, but experiments are made difficult by the necessity of introducing the competition factor. When plants are grown in pots and trial plots the treatment may depress the vitality of one lot by 20 per cent., an amount more than enough to secure its total elimination in a state of nature without any effect being perceptible in the growth. When protected from competition the growth does not depend upon what might be called vitality or constitution, but upon food supply.

Certain special cases also have been recorded in which the presence of particular constituents in the soil seems to produce pathological disturbances in the plant, even to the extent of setting up teratological changes such as were studied by the distinguished man in whose honour these lectures were founded, but here, again, experimental evidence is lacking. The lecturer concluded by stating that his lectures had been all along directed to indicating the extent of our ignorance and the field for work that is open. In the present state of our knowledge it is vanity to dogmatise about the requirements in the way of soil of more than a very few plants.

SHROPSHIRE HORTICULTURAL.

MARCH 18.—The annual meeting of the Shropshire Horticultural Society was held at Shrewsbury on this date. The Mayor of Shrewsbury (Mr. Benjamin Blower) presided. Mr. Naunton presented the committee's report, which stated that the total receipts at the gates on the two days of the show amounted to £2,689 6s., while the receipts from all sources amounted to £5,245 18s. 7d. The balance-sheet showed that the receipts from the summer show reached the sum of £4,952 12s. 3d., and the disbursements £4,306 2s. 2d., leaving a profit of £646 10s. 1d. The expenses connected with the spring show amounted to £139 11s. 5d. Mr. E. C. Peele moved the adoption of the report and balance-sheet, and the motion was carried. Mr. A. Wynne Corrie was elected president for the year, and the retiring president, Sir Clement Hill, M.P., was thanked for his services.

Obituary.

JAMES MCINDOE.—The late Mr. McIndoe, whose death was recorded in our last issue, gained his early gardening experience at Archerfield, East Lothian, but he must have come to England while still young, for he served in various places as foreman; the last was probably at Addington, near Croydon (at that time occupied by the Archbishop of Canterbury). In the early 'sixties he was appointed gardener to the then Archbishop of York, at Bishophorpe Palace. He remained at Bishophorpe some seven years, and made a name at the northern shows as a successful exhibitor, especially of the Hollyhock. In the year 1874, the late Sir Joseph Pease was making great extensions to his gardens at Hutton Hall, and Mr. McIndoe was engaged to undertake the management. All the fruit borders were formed, and the vines, Peaches, and other trees planted under his direct supervision, therefore the credit for the excellent results which followed is due to him. Mr. McIndoe found in Sir Joseph Pease a kind and generous employer, who provided him with the most up-to-date glass structures. There were serious drawbacks, however, to meet and combat, chiefly owing to the situation of the gardens and the cold climate. Hutton Hall is situated in a valley at the foot of the Cleveland Hills, and within a

short distance of the North Sea. It is not unusual for the gardens to be enveloped by a dense cold "sea fret," as it is termed there, for many weeks together during the spring and early summer months. Owing to these circumstances frequent anxiety and difficulty were found in setting the flowers of vines, Peaches, and even Melons. Similar trouble was experienced in the autumn, when sunshine was required to mature the crops and the current season's shoots. Most varieties of Grapes were given a trial in the extensive vineries, and though many failed to fruit satisfactorily, some, owing to their free and strong habit of growth, were retained as stocks to be grafted with the satisfactory kinds. Perhaps this fact may, in some measure, account for the vines continuing so long to produce exhibition bunches. Instances could be given of varieties which were improved by this grafting system at Hutton, such as the Black Hambro' worked on the Barbarossa, &c. Mr. McIndoe followed no rule-of-thumb practice in the treatment of his vines, unless it was in allowing plenty of room between the leaves and roof glass, and in keeping the foliage as thinly disposed as possible. In most instances the vines, being planted 6 feet apart, the spurs were induced to form alternately; thus each shoot was trained along the wire until it met the next cane. In this way there was no fear of overcrowding, and each leaf had, as it were, its own position. Perhaps one of the finest exhibits in Grapes Mr. McIndoe ever made, was at Edinburgh some years ago, the 12 bunches weighing something like 86 lbs. It would be impossible to refer to the many grand exhibits of fruit made by Mr. McIndoe both in Scotland and throughout England; they were always amongst the most successful and they were continued for a great number of years. McIndoe's "Best of All" Melon has, perhaps, secured more prizes throughout the country than any other variety. He also raised and sent out another good variety under the name of Scarlet Premier. Mr. McIndoe was selected as one of the first to receive the Victoria Medal of Honour. Since retiring some years ago from the charge of the gardens Mr. McIndoe resided chiefly at Dartford, and attended the meetings of the Fruit and Vegetable Committee of the Royal Horticultural Society. As soon as he found himself at liberty and could take a holiday, he sailed to Auckland, New Zealand, to visit a brother who had been established there as a nurseryman for nearly half a century. This was no small undertaking for a man turned 70 years of age. The deceased was 73 years of age. His remains were interred at Wilmington Churchyard, Dartford, on the 16th inst.

DEBATING SOCIETIES.

SHINFIELD COTTAGE GARDEN.—This old society, which lapsed after 25 years good work, has been revived. The annual flower show was always regarded as a local holiday. The show will be held in August.

ELSTREE HORTICULTURAL.—At the meeting, on Tuesday, March 15, held in the Church Room, Elstree, Mr. W. Catbush, of Barnet, gave a lecture on "Roses." At the close of his remarks, the lecturer answered several questions on the subject. An exhibition of Hyacinths, in competition for prizes by the school children, was held in conjunction with the meeting. A superb collection was staged by Mr. E. Beckett, V.M.H., gardener to the Hon. V. Gibbs, the president of the society, as a special exhibit.

BATH GARDENERS.—A well-attended meeting of the society was held on March 14, when Mr. W. T. Partt presided. A paper on "Asparagus" was read by Mr. W. G. Edwards. The lecturer sketched the early history of the plant, and gave the various methods of cultivation. Propagation, he said, could be effected by seeds or by division, but the former method was by far the best. Seed should be sown during the first week of April, in drills, and the seedlings should be thinned to 6 inches apart. In the following March or April they should be transplanted to the permanent beds.

BRITISH GARDENERS' ASSOCIATION (LONDON BRANCH).—On March 19 about 100 members and friends were present at a concert at Carr's Restaurant, Strand. Mr. F. F. Hawes, chairman of the branch, presided. The musical programme was arranged by Mr. Andrews and proved a great success. Selections from Shakespeare were admirably rendered by Mr. Clarke.

BANBURY AND DISTRICT GARDENERS.—This society met at the White Horse Hotel, Banbury, on Friday, March 18, when Mr. Wadham, gardener to Mrs. Bradshaw, Steeple Aston Grange, gave a lecture on "The Culture of Early-flowering Plants for the Garden and Allotment," in the place of Mr. G. Hunter, of Blenheim Palace Gardens, who at the last moment was unable to attend. About 30 members were present. Mr. Wadham dealt principally with Stocks, Mignonette, Forget-me-nots, Violets, and some of the easily-cultivated Orchids.

MARKETS.

COVENT GARDEN, March 22.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples Newtown (U.S.), per barrel	26 0-28 0	Mangoes (Cape), per doz.	4 0 10 0
— (Nova Scotia), per barrel	16 0 18 0	Nectarines (Cape), per box (24 to 25 fruits)	5 0-10 0
— Starks	14 0-17 0	Nuts, Almonds, p. bag	36 0 42 0
— Baldwin	14 0-18 0	— Hazels, new, per cwt.	32 0-36 0
— Greening	17 0-21 0	— Barcelona, per bag	32 0-34 0
— Russett	18 0-20 0	— Cob, per lb.	0 3 0 3 1/2
— Fallaway	16 0 18 0	— Cocoa nuts, 100 lb.	10 0 14 0
— Ben Davies	5 6-6 6	— (Italian), p. bag	11 0-13 0
— (English), per bushel	5 0-7 0	Oranges—	
— Annie Elizabeth	5 0-8 0	— Palermo Blood	7 6-8 6
— Newton Wonder	7 0-8 6	— (100)	8 0-9 6
— Bramley's Seedling	11 6 14 0	— Californian	10 6-11 6
— Newtown Pippin, per case	8 0-10 0	— Navel, box (36)	12 0-13 0
— Oregon	12 0 18 0	— (112)	12 0-11 0
— French Russets	11 0-12 0	— Latias, per box	9 0 11 0
— British Columbia	11 0-12 0	— Denia, per case	12 0-22 0
Bananas, bunch	10 0	— Valencia, per case (420)	11 0 20 0
— Doubles	8 0 10 0	— Messina Bitters, per box	10 6-11 0
— No. 1	8 0-10 0	— Mandarin, Florida, p. case	11 0-13 0
— Extra	9 0-11 0	— per box	1 4-1 6
— Giant	4 6 6 0	— Jamaica, p. case	9 6 10 6
— Red Doubles	8 0-9 0	— Tangerine, per box	0 6-0 10
— Jamaica	5 0-5 6	— Seville, Sour, per 1/2 chest	15 0-16 0
— Loose, per dz.	0 6-1 0	Peaches (Cape), per box (12)	8 0 12 0
Cranberries, p. case	6 6 7 6	Pears (Avacado), per doz.	6 0-12 0
Custard Apples, p. dozen	6 0-12 0	— (Cape), per box (24, 28, 32), Williams' BonChretien	2 6-4 0
Grace Fruit, case	10 0-14 0	— (Australian), p. tray	4 0-5 0
Grapes, per lb.	10 0	Pineapples, each	3 0-5 0
— Cape, large, per case	5 0-6 0	Plums, (Cape), per box (15 to 28 fruits), Wickson	4 0 6 0
— small	2 0-3 0	— (Cape), Apple per box	9 0-14 0
— Gros Colmar, A quality	1 0-1 9	Satsuma	5 0 7 0
— B quality	1 6 2 6	— Chalcot, p. box	5 0 7 0
— Alicant, A quality	1 3 1 9	Strawberries, p. lb.	6 0 8 0
— B quality	1 3 2 0	— seconds	2 0 4 0
— Gros Colmar (Belgian)	14 0-20 0		
— America, per barrel	5 0-8 0		
p. 12 lb. baskets	7 0-9 6		
Lemons, box	360 9 0-10 0		
— Palermo, 300	11 0-13 0		
— selected, case	2 6-3 0		
Limes, per case	1 6-1 9		
Lychées, per box			

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	2 0-2 3	Mustard and Cress, per dozen pun.	1 0 —
— Jerusalem, 1/2 sieve	0 9-1 0	Onions (Dutch), p. bag	3 0-3 6
Asparagus, Paris Green, bundle	6 6-7 6	— (English), bag	4 0-4 6
— Sprue, bundle	0 10-1 0	— pickling, p. bush.	7 0-8 0
— Lawies, bundle	6 0-8 0	— Spring, per dz. bunches	3 0-4 0
Beans (English and Chan. Islands), per lb.	1 0 —	— (Valencia), per case	8 6 9 6
— Broad (French), per pad	4 0-5 6	Parsnips, per bag	1 6-2 0
— (Madeira), per basket (6 to 8 lbs.)	2 6-3 6	Peas (French), per pad	3 0-5 0
Beetroot, per bushel	1 6-2 0	Potatoes (Channel Islands), per lb.	0 4 —
Cabbages, p. tally	2 6 —	— (Tenerife), per cwt.	10 0-15 0
Cardoons (French), per dozen	8 0 10 0	Rhubarb (forced), doz. bundles	0 4-0 8
Carrots (English), dozen bunches	2 9-3 0	— Natural, per tray	5 6-6 6
— per bag	3 6-4 0	Radishes (Guernsey), per dozen	0 8-0 9
— unwashed	1 6 1 9	Savoy, per tally	4 0 7 0
Cauliflowers, tally (French), per crate (24-30)	3 6 4 6	Seakale, per dozen punnets	10 0 12 0
Celeriac, per doz.	1 6 2 6	Spinach, 1/2 sieve	2 6-3 0
Chicory, per lb.	0 2 0 3	— (French), crate	4 0 5 0
Cucumbers, per dz.	3 6 4 6	Sprouts, 1/2 sieve	1 0-1 3
— 1 lb. per doz.	2 0 2 3	— (2 lb. sieve)	1 3 2 6
— 1 lb. per doz.	1 0-1 3	Sprouting Broccoli, per lb.	1 3-1 9
— 12 bunches	12 0-15 0	Stachys tuberosa, per lb.	0 4-0 5
— 12 bunches	1 0 1 6	Tomatoes	
Lettuce (French), per dozen	1 0-1 6	— (Tenerife), per bundle	6 0 12 0
— (Cos), per doz.	3 6-5 6	Turnips, 12 bchs.	2 0 3 0
Marrows (Madeira), per doz.	12 0-18 0	— 1 lb.	2 0 2 6
Mushrooms, per lb.	0 8 0 9	— dirty, per bag	1 6-2 0
— broilers	6 —	Turnip Tops, bag	1 0 2 0
		Watercress, p. flat	4 0-6 6

REMARKS.—There are now large supplies of Jaffa Oranges. Californian Fruit is arriving in increased quantities, and prices are a little easier. Apples continue to sell well at about the same prices. French Asparagus sells well, especially Paris Green, which is very dear. Forced Rhubarb is not quite so plentiful, but is being sold very cheaply. The shipments of French Cauliflowers are smaller, and consequently prices are slightly dearer. The English and Foreign Grape trade is good. Trade generally good. E. H. Rides, Covent Garden, March 22, 1910.

Potatoes.			
Bedfords—	per cwt.	Lincolns—	per cwt.
Up-to-Date ...	s.d. s.d.	Up to Date ...	s.d. s.d.
Blacklands ...	3 0-3 6	Dalmeny Beauty ...	3 3-4 0
Dunbars—	2 3-2 9	Royal Kidney ...	2 6-2 9
Maincrop ...	5 3-5 6	Maincrop ...	3 3-3 9
Up-to-Date ...	4 3-4 6	King Edwards ...	3 8-3 9
Lincolns -		Blacklands ...	2 9-3 0
Evergood ...	2 3-2 9	Kents	
Sharpe's Express ...	3 0-3 3	Scottish Triumphs	3 6-4 0
		Up to-Date ...	3 6-4 0

REMARKS.—The stocks in London are not quite so large. Best tubers have a fair demand, but inferior ones sell very slowly. Prices remain about the same as last week. Edward J. Newborn, Covent Garden and St. Pancras, March 22, 1910.

SCHEDULES RECEIVED.

National Auricula and Primula Society (Southern Section).—The annual exhibition will be held in the Royal Horticultural Society's Hall, Westminster, on May 3, in conjunction with the fortnightly meeting of the R.H.S. The schedule includes 30 classes, 21 for Auriculas and 9 for Primulas. Polyanthus and Primroses. Two silver-gilt medals are offered by Mr. James Douglas to amateurs who obtain the highest aggregate number of points in certain classes. The committee will meet at 2.30 p.m., to consider the merits of new varieties submitted for certificates. The schedule may be obtained from the hon. sec. and treasurer, Mr. T. E. Henwood, Auricula Villa, 16, Hamilton Road, Reading.

National Carnation and Picotee Society (Southern Section).—This society is still doing good work, but it has been unfortunate in the last year or two in losing by death several of its most prominent supporters. The annual exhibition will again be held in the Royal Horticultural Hall, Westminster, the date being fixed for July 26. A cup, valued at £5, will be given to the exhibitor who gains the highest number of points in the first 9 classes, which comprise the first division. Cups to the value of £4 and £3 will also be given respectively in the second and third divisions. We are glad to notice that the committee insists upon exhibitors properly naming their varieties. The Martin-Smith Memorial Challenge Cup will be awarded, together with a medal, for the best exhibit by an amateur of 12 undressed flowers of distinct varieties of Selfs, Fancies and Yellow-ground Picotees, three blooms of each variety. In the open classes, the Cartwright Challenge Cup will be awarded for the best exhibit or exhibits of an exhibitor. The secretary is Mr. T. E. Henwood, 16, Hamilton Road, Reading.

The Haywards Heath Horticultural Society will hold the twenty-second annual flower show, on Wednesday, July 27, in the Victoria Park, Haywards Heath. Also, a Chrysanthemum show on Tuesday and Wednesday, November 1, 2, at the Public Hall, Haywards Heath. Secretary, Geo. Prevett, The Rosery, Haywards Heath.

Royal Ulster Agricultural Society.—A horticultural exhibition will be held in conjunction with this society's Horse Show at Balmoral, Belfast, on July 21, 22. Competition is confined to amateurs. There are 33 classes, and in each a small entrance fee is imposed. The most important classes are those for 24 distinct varieties of Roses, 12 bunches of decorative Roses in not fewer than nine varieties, 24 bunches of hardy garden flowers, and 12 bunches of Sweet Peas, in distinct varieties. The schedule may be obtained from the secretary, Balmoral, Belfast.

Royal Agricultural Society's Show.—The horticultural exhibition in connection with the Royal Agricultural Society's annual show appears to be a permanent feature. This year the competitive classes number 18, but the Society also invite honorary exhibits, so that it is probable an imposing floral display will be seen. The exhibition is fixed for June 6, and will continue for four days. A first prize of £30 is offered for a group of miscellaneous plants, with £25 and £20 respectively, as second and third prizes. A gold medal and £10 are offered as first prize for a collection of Orchids, and similar prizes are offered for the best display of hardy flowers and plants. Gold and silver medals will be awarded to non-competitive exhibits of special merit. The show will again be under the management of Mr. Peter Blair, Trentham, and intending exhibitors must give notice to the secretary before June 4.

Bolton Horticultural and Chrysanthemum Society's 24th exhibition to be held in the Albert Hall, Bolton, on Friday and Saturday, November 18, 19. Secretary, Mr. George Corbett, Heaton Grange Gardens, Bolton.

Dulwich Chrysanthemum and Horticultural Society's 17th annual exhibition to be held at the Baths, Goose Green, on Wednesday and Thursday, November 9, 10. Hon. secretary, Mr. R. B. Leech, Woodhall Cottage, College Road, Dulwich.

CATALOGUES RECEIVED.

BARR & SONS, King Street, Covent Garden, London—Hardy Perennial, Alpine and Aquatic Plants.
CHAS. RAMSAY & SON, Ball's Bridge, Dublin—Hardy Garden Flowers.

FOREIGN.

F. W. KELSEY NURSERY COMPANY, 150, Broadway, New York, U.S.A.—Trees and Hardy Plants.

GARDENING ANNOUNCEMENTS.

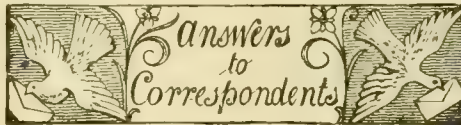
[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. JOHN C. POPE, for 12 years Gardener to CHARLES BAILY, Esq., Clumber House, Frome, as Gardener to Mrs. G. W. MEDLEY, Winsford Tower, Beaworthy, North Devon. (Thanks for 2s. received for R.G.O.F. Box.—Eds.)

Mr. R. H. KNIGHT, for more than 3 years Gardener to G. A. ZIEGELE, Esq., Bellevue, Woodford, and previously Gardener to A. W. LOBB, Esq., Rolls Park, Chigwell, as Gardener to E. MOORE, Esq., Drakecourt, Blackheath.

Mr. ALBERT R. PEARCE, for 6½ years Gardener to F. DUDLEY DOCKER, Esq., J.P., The Gables, Kenilworth, and previously 4 years Gardener to F. J. PITMAN, Esq., Braynhead, Berkshire, as Gardener to J. STAFFORD, Esq., J.P., Elmsleigh Hall, Leicester.

Mr. RUFUS HORNE, as Gardener to J. A. FAIRHURST, Esq., Arlington Manor, Newbury, Berkshire. (Thanks for contribution to R.G.O.F. Box.—Eds.)



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

APPLES ECKLINVILLE SEEDLING AND WORCESTER PEARMAN: P. S. You will find a brief history of these varieties in Hogg's *Fruit Manual*. Ecklinville is situated about 18 miles from Dublin. The tree was raised there by a Scotch gardener named Logan in the early 'eighties. Worcester Pearmain originated with Messrs. Richard Smith & Co., of Worcester: it is a seedling from Devonshire Quarrenden. The best work on Apples and Pears, with illustrations, is the *Herefordshire Pomona*. The book may be out of print, but you would be almost certain of obtaining a copy from the secondhand booksellers.

AQUILEGIAS: Sea View. You appear to be raising your plants year after year on the same ground, and your difficulty is that they deteriorate. Next season raise the seedlings in boxes, so that the ground will be free all the winter to undergo thorough cultivation and enrichment. A quantity of slaked lime would be very beneficial. A dressing of superphosphate of lime, say 4 ounces to the square yard, is the best fertiliser you can apply now, and this should be lightly pricked into the soil. You appear to be saving your own seeds each year; this would also in time cause deterioration; therefore you had better purchase seeds or seedlings for a year or two. A change of seed in conjunction with the soil treatment suggested would doubtless prove beneficial. The season of 1909 was not a good one for seed ripening, and your case appears to support the general rule. There are several varieties of the common Honeysuckle, but we do not know to which you refer.

BOOK: A. B. Miss Jekyll's *Colour in the Flower Garden* would be suitable for your purpose. This can be obtained from our Publishing Department, price 13s., free by post.

FERTILISATION OF CUCUMBERS AND MELONS: H. Y. The flowers of both Cucumbers and Melons are monoecious, which means that the stamens and pistils are borne in different flowers. Consequently, unless the pollen from the male flower is distributed either by the hand or by other agencies such as wind, insects, &c., to the female flower, it is impossible for the female flower to produce seed. Gardeners do not find it necessary to fertilise Cucumbers, for the reason that the fruits swell, although no seed is set. The fruit or Cucumber develops just as perfectly without fertilisation as with it, though, as we have said, in such circumstances the Cucumbers are seedless. In the case of Melons, the fruit does not develop unless fertilisation is effected, consequently, whilst pollination is generally included in case of Cucumbers, it is almost invariably practised in the cultivation of Melons, especially of indoor Melons in this country.

FIG DISEASED: R. C. S. The branches are badly attacked by *Libertella ulcerata*, a fungus very injurious to the Fig tree. All diseased branches should be removed, being cut so far back that no trace of the dark colour of the wood, caused by the fungus, can be seen.

MERCURY OR LINCOLNSHIRE ASPARAGUS: H. Bechan, Germany. These terms are applied to *Chenopodium Bonus-Henricus*, a plant used in many parts as a vegetable.

NAMES OF PLANTS: H. W. *Cymbidium aloifolium*. It varies considerably, and yours is a good form—often called *C. pendulum*.—D. M., Edinburgh. *Odontoglossum gloriosum* and a small-flowered *Dendrobium*, but the flowers are not distinguishable.—J. W. *Bulbophyllum Pechei*.

NERINE BOWDENII, Croydon Haik.—If Nerines are grown in an ordinary cold greenhouse, such as the Cape Heaths generally occupy, they are amongst the easiest plants to cultivate. They flower as satisfactorily as any bulbous species, provided they pass the necessary dry, resting season, either on a shelf in the cold house in which they have been grown, or in a cold, sunny frame, or in the open garden. *Nerine Bowdenii* is one of the strongest-growing, freest-blooming and most lasting of the genus. Nerines should only be repotted at long intervals, for, once established, they are best left undisturbed for years, and if they are repotted annually it often prevents them flowering. The main factor in the case is to see that the plants get an abundance of rain water when growing and making leaf-growth, and a long, dry rest after the foliage fades and until the flower-spikes are well advanced. The *Nerine flexuosa* section, including *N. flexuosa alba*, *N. Bowdenii*, *N. undulata* (crispa), &c., require a rather shorter resting season than the *N. Fothergillii* section, but if they are treated the same as *N. Fothergillii* no harm results. Stove house temperature is injurious to Nerines, even in the growing season, and causes rapid decline, especially if the plants are not allowed to pass a period in the open air in summer. A cold frame is preferable to a warm house, and a position on a shelf near the glass of the roof is desirable. Yellow fibrous loam, with the addition of a little sand, is the best compost. *N. Bowdenii* was figured in *Gardeners' Chronicle*, November 26, 1904.

PRUNING NEWLY-PLANTED TREES: H. J. You say it is not recommended to prune trees of Apple and Pear which have been recently planted. There are two schools, and some growers advocate the pruning of such trees whilst others do not. The system of non-pruning is recommended mainly on the grounds that pruning causes more or less check to the tree, and the dormant shoots contain reserve food which will help the plant to form new roots. Those who favour pruning do so on the grounds that (1) the roots having suffered a severe check strong top-growth can only be obtained by limiting the number of shoots in the first season; (2) that by pruning, the cultivator can be more certain of getting growth from near the base, thus forming a good foundation for the future development of the tree.

ROOTS OF FIR TREE: A. A. T. The plant is a seedling Pine, and the white substance about the roots is a fungus known as *Mycorhiza*. This should be present on the roots of all the trees you mention, and is a sign of healthy conditions and vigorous growth.

ROSE MARÉCHAL NIEL: Rosa. The damage has been caused by excess of moisture, and a cool, stagnant atmosphere. There is no disease present. Keep the house drier and warmer, affording fresh air whenever the conditions are favourable.

WORM IN STRAWBERRY SOIL: T. D. This is the mischievous Aster worm (*Enchytraeus parvulus*, Friend). The soil is too rich in fibrous and vegetable matter. Water with dilute insecticide.

Communications Received.—W. W.—F. S.—O. W.—B. E. T.—Leafless—E. L. J.—H. J. V.—F. W. E.—J. G.—A. H.—F. & E. S., Ltd.—E. F. H.—H. Y.—A. C. B.—P. R. M.—G. M.—J. D.—Reading Gardeners' Assoc.—Royal Horticultural College, Swanley—S. A.—H. H. W.—C. H. P.—W. F.—A. G. S.—G. W.—R. J.—O. B.—Chloris—E. H. J.—C. F. D.—A. P.—W. M.—F. M.—H. S. T.—W. D.—W. G.—A. B.—J. F.—T. S.—A. P.



GARLAND

Photographs by George Forrest.

SCENES IN TIBET AND CHINA.

(ABOVE) INTERIOR OF TIBETAN FOREST, SHOWING CONIFERS AND MIXED SHRUBS. THE TREE ON EXTREME LEFT IS *MAGNOLIA CAMPBELLII*.

(BELOW) VIEW OF SOUTHERN PART OF LICHANG RANGE, ALT. 17,000 FT.



THE Gardeners' Chronicle

No. 1,214.—SATURDAY, April 2, 1910.

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ROSSDOHAN AND OTHER IRISH GARDENS.

THE southern coast-line of Ireland is marvellously beautiful. The island-studded bays are in fine weather as blue as the sky, and, in the background, the tawny mountains rise. The white shore, the profuse vegetation, the warmth on summer days, and the general outlook recall some southern clime rather than the coast of the British Isles.

Rossdohan, the property of Mr. S. T. Heard, is some miles to the westward of Kenmare, and not far distant from Parknasilla. It is a most picturesque and delightful spot, standing on the margin of a lovely bay, and flanked with bold headlands. The gardens are stocked with a large collection of rare plants, and are well worthy of a visit from any who take an interest in tender and uncommon shrubs. *Hakea saligna* was present in quantity, there being numbers of enormous bushes, some, fully 25 feet in height. They were crowded with large seed-pods, from which seedlings have since been raised. An excep-

tionally fine specimen of *Edwardsia* (*Sophora*) *microphylla* was 20 feet in height and 18 feet through, and was said to be a cloud of yellow with innumerable expanded blossoms in the spring. The Australian *Leptospermum flaves-cens* was 25 feet in height, and the rare *L. urnigerum* 20 feet. *L. scoparium* 25 feet, *L. lanigerum* 15 feet in height and 18 feet in diameter, and there was a good example of *L. falcatum*. This is probably the best collection of *Leptospermums* in the United Kingdom. An extremely rare plant was a variegated form of *Cordylina australis*, which was the only one known. *Asparagus plumosus*, which had been planted out for three years, had climbed to a height of 10 feet up a *Cordylina*, and was looking the picture of health. There was a fine, large tree of *Eucalyptus urnigera*, and a good specimen of *E. viminalis*. An interesting shrub was *Cassinia aculeata*, a native of Australia. Its flowers, at first, are white, then change to pink, and last in perfect freshness until the frosts. This specimen was 15 feet in height. Another rare plant was *Virgilia capensis*, a South African shrub with rosy-purple flowers—the sole representative of its genus. Other rarities included *Callistemon salignus*, common in the south-west; the scarcer *C. speciosus* and *Melaleuca Leucadendron*. *Pittosporum bicolor* was 12 feet in height, and there was a good example of the rare *P. Ralphii*. *Olearia macrodonta* was well represented, and there were good specimens of *O. argophylla* and *O. lyrata*, the latter a very uncommon plant. There was a fine shrub of the North African *Lycium afrum*, about 8 feet high, which bears violet flowers, and specimens were noted of the Australian *Pomaderris apetala*, a bush bearing countless, small, greenish flowers, and known as the Victorian Hazel. *Acacia decurrens* was in the best of condition, and covered with flowers. *Aralia Maximowiczii* was represented by a very fine and tall specimen.

In one spot, ridges of rock cropped out of the soil, and of these had been formed a rock-garden; prepared, gritty compost having been placed between the ledges. The stone-work was formed of the living rock, the effect was charmingly natural, and the plants evidently appreciated their surroundings.

There are many very interesting and attractive gardens in the South of Ireland that are well worthy of a visit. At Bantry House, the gardens have been taken in hand of late years, and there is a good collection of rare and tender subjects, most of them at present small. Among them is a plant of *Rhododendron Nuttallii*, which is planted as a bush, but would probably succeed better against a wall, as it is a tender species that is rarely grown in the open even in Cornwall. At Glengariff Castle are some fine specimens of *Eucalyptus Globulus* which are over 70 feet in height and about 7 feet in girth. At Glengariff Lady Ardilaun has a garden in a delightful spot sloping down to the water, where it was proposed some years ago to build a house; but the project was never carried out, and the place has become somewhat of a wilderness. It is, however, most beautiful, and might be transformed easily into a charming garden. Many good things were planted in former times in the grounds, there being numbers of fine *Rhododendrons* of the rarer species and varieties, and the largest specimen of *Tricuspidaria lanceolata*, better known

as *Crinodendron Hookerianum*, that it has ever been my fortune to see. This splendid plant was fully 20 feet in height and 12 feet through, and in July was covered with seed-pods from its highest shoots to the base. On Lord Bandon's estate at Castle Bernard there are some exceptionally fine trees, among these being Silver Firs 90 feet in height and a Chestnut with a branch circumference of 154 yards. In the old days there was a conservatory against the house, in which was growing a plant of *Acacia Riceana*. The conservatory has long since been pulled down, but the *Acacia*, which has grown into a very large plant, is in vigorous health, and flourishes in the open against the wall. *Wyndham Fitzherbert*.

DAHLIAS FOR GARDEN DECORATION.

I WAS interested in the extracts from Mr. Gordon's paper on this subject, published in the issue for March 12, p. 173. Dahlias are very effective, used either in groups or as screens. First as to groups: these are effective in the autumn months when associated with, though not placed too near, clumps or belts of trees and shrubs. As a rule, only strong-growing varieties of single or Cactus-flowered varieties should be employed for this purpose, and they should be of one colour only. In my mind's eye are two groups which were thought very effective as seen during the warm autumns a few seasons since. The bed was permanently planted with a margin of *Funkia Sieboldii* variegata; then a broad band of *Anemone japonica*, with here and there a strong plant of *Salvia patens*. The centre was filled one year with the variety *Juaresii*, another, with a seedling scarlet cactus-flowered variety provisionally named *H. J. C.* The bed accommodated about a score of plants at 1 yard apart. The soil was deeply dug each year, working in a good dressing of ordinary manure at the same time. For planting, we always used strong, old roots which had been established in 8-inch pots but not grown in too much heat, and hence provided with sturdy shoots. One year, when the spring was warmer than usual, we planted them direct from the cellar where they had wintered, and they did quite as well as if they had been first planted in pots. A small spadeful of sifted coal ashes was put on each crown to prevent injury from slugs, and a few small Yew branches were placed as protection from late frosts. Finally a good mulching of decayed lawn mowings and leaves was put all over the bed. Tall, stout Pea rods, with some of spray shoots cut out, were used as supports. The growths fell naturally and were supported amongst the twigs—a far more effective method of supporting them than is usually employed. Strong-growing varieties of the single type were used in the same manner in other parts of the grounds. For brightening up the fronts of shrubbery borders, groups of singles of one colour are well adapted. Only those of crimson, scarlet, yellow, pink or white should, however, be used.

The same varieties and the same treatment are indicated when Dahlias are used for hedges or screens. They are useful for screening the vegetable quarters when the kitchen garden is near to the dwelling-house. Unless some colour scheme is in view I would suggest a mixture of colours of single varieties for this purpose. If a few clumps of Sweet Peas, single Sunflowers, and, here and there, a plant of *Tropæolum canariense* are intermixed, the result will be a natural-looking hedge of garden flowers. As showing the comparative hardiness of Dahlias, I know of a specimen planted some years ago near the south wall of a church that comes up each year like any hardy, herbaceous plant. Inside the church are hot-water pipes kept warm all the winter months. *Yorkshire Gardeners*.

ORCHID NOTES AND GLEANINGS.

LYCASTE GIGANTEA LABELLO-VIRIDIS.

ALTHOUGH this form is nearer to the type than the varieties usually seen in gardens, or which have been figured—the labellums being more or less of a reddish brown tint—it was named in gardens, and enumerated in Williams' *Orchid Manual* some years ago. A fine flower, measuring 6 inches across the sepals, is sent by Talbot Clifton, Esq., Lytham Hall, Lytham (gr. Mr. Float). The whole flower is thick in substance, the sepals, petals and lip of a pale green, the lip having a slight yellowish shade in the middle, and with a narrow, slightly fimbriate, whitish margin. The stout column is ivory-white above and tinged with green beneath.

The species was discovered by Hartweg above Guayaquil, in Ecuador, in 1842, and sent by him to the Royal Horticultural Society, in whose gardens at Chiswick it flowered in 1845. It has since been received from various parts of the Cordillera, of Colombia and Venezuela, always at a high elevation. It is a very striking flower and lasts a long time in bloom if kept at the cool end of the intermediate house. Its nearest ally is *Lycaste fulvescens*, which is also in flower at Lytham Hall.

BLUE DISAS.

ON two occasions recently Messrs. Charlesworth & Co. have shown the pretty violet-coloured *Disa lacera*, which has also bloomed with Mrs. Bischoffsheim in the gardens at The Warren House, Stanmore, where her Orchid grower, Mr. Taylor, grows *Disa grandiflora* splendidly. But the Blue Disas have never been grown satisfactorily in gardens generally.

Some years ago I wrote to Mr. James Hall, then in S.E. Cape Colony, asking him if he could account for the Blue Disas of the *D. graminifolia* section not growing for any length of time in gardens here, and he replied that he could only think that they were kept too close and warm and were "too much nursed." He wrote: "I notice that Blue Disas form a new tuber every year, and that the old one slowly decays also every year. In a week or so after the flowers fade the wind and sun dry up the old flower-stems, and all traces of the plants are lost until the next flowering season comes round, their scanty foliage being mixed up with the long grass and Heather. This ought to give the key to successful culture, for everyone knows so well where Heather grows at home, and it is in a similar place that our lovely Disas and *Satyrium*s grow here. The soil is sandy and not particularly dry. At the same time I must impress upon you that there is nothing tropical in the climate of the district to which I refer. If the Blue Disas would only bloom as freely at home as they do here they would be in great demand."

Remembering Mr. Hall's remarks I planted a few Blue Disas tubers of three species in the open garden at the base of a small Lilac bush last summer, in a little mound of rough grit and peat, and they sent forth their grassy leaves and looked quite healthy until the frosts came, when the leaves, already well matured, died off. To-day I lifted several, and found the tubers quite sound, which proves that they will withstand a considerable amount of cold and even frost. The tubers are not those I planted, but the new ones formed while the old ones gradually died, as they do annually. They are only half the size of the old tubers, the growth having stopped when the frosts came, and I do not think they will ever make up sufficiently to flower. Therefore in any but warm and genial localities outdoor culture would not succeed. But I cannot help thinking that a cold frame or greenhouse would give better results than the moister and warmer houses where the Blue Disas have been hitherto grown with *D. grandiflora*.

Disas may be divided into two classes—*D. grandiflora*, *D. racemosa*, *D. tripetaloides*, and others of the class having tubers, and increasing

by stolons, therefore requiring similar treatment; and *D. graminifolia* and others, which extend by new tubers only, require a drier air and a prolonged, dry, resting season, during which, however, a little water should be given occasionally to ensure the full growth of the new tuber. James O'Brien.

WELWITSCHIA MIRABILIS.

IN the interesting article by Professor Pearson (see *Gardeners' Chronicle*, January 22, 1910), describing the first stage of the growth of *Welwitschia*, he states: "Meanwhile, these appear on the flat top of the stem, between these leaves two small outgrowths—green, leaf-like expansions—becoming, in the older plants, corky knobs, whose nature is obscure."

Having had the opportunity of examining various specimens, I believe I am able to define

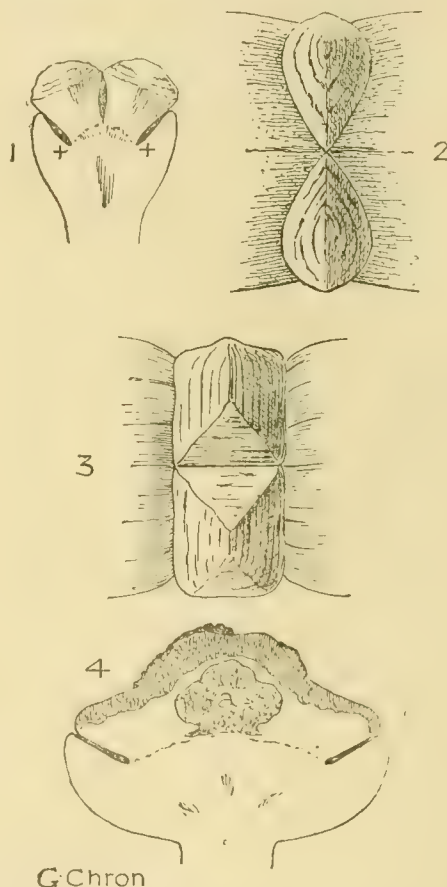


FIG. 90.—STRUCTURE OF WELWITSCHIA.

1 and 2, young stages before the outgrowths have fused; 3 and 4, old stages, in which the outgrowths have coalesced with the stem.

the nature of these green leaf expansions, and on this subject I published a small note in Vol. 1 of the *Transactions of the Academy of Sciences (Portugal)*, 1909.

These growths I believe to be branches.

In the *Gardeners' Chronicle* (January, 1882) the late N. Monteiro published the following very exact description of the growth of the *Welwitschia*:—"As seen in a very young plant, they are two separate, scaly bodies; these, as they advance in age, go on spreading and take the appearance of two mamillæ, very similar to the remains of the flower on a ripe Pineapple. These grow on, and, filling the tigellum, oblige it to take a rather oblong form. When about five years old, they are quite close together, but are, to all appearances, separate. With an increase of age, they coalesce completely, and the jointure is imperceptible, though retaining the appearance of two mamillæ; but when older they are so distended and rough that all

traces of them are lost, and only a flat, table-like surface remains, as seen in the dried specimens."

The scaly bodies appear very early, and, at first, stand in relation with the cotyledons; they are, undoubtedly, axillary branches. During their growth, each resembles the stem somewhat. The stems soon lose the terminal, but continue their peripheral growth, forming a cavity in which the two branches are enclosed. It is from the bottom of this cavity and from the outside of the insertion of the two branches that the permanent leaves grow (fig. 90. 1). During their growth these branches unite in the centre by the uppermost parts (fig. 90. 3, 4), and, having at last joined together, become, as it were, part of the stem, constituting what Hooker called the crown; between these branches and the stem there is a slit, and at the base of this the permanent leaves are produced. The stem and crown continue growing together, the lateral and peripheral growth being always very pronounced in the parts corresponding to the leaves. The growth of the plant is very slow. A plant cultivated for 12 years in a greenhouse in the Botanical Gardens only reached 35 mm. in breadth, with 4 cm. in height, and the leaves 1 metre. It is from the crown that almost all inflorescences are produced.

In a classic memoir on *Welwitschia*, Sir J. D. Hooker writes:—"I have no evidence of the plant ever bearing more than two leaves; there is, however, no reason why more than this number should not be developed, for the embryo may occasionally be tri- or poly-cotyledonous, as is the case with so many other Gymnosperms, including its near ally *Ephedra*."

In the Botanical Museum at Coimbra there is a specimen with three branches and three leaves. J. Henriques, Coimbra Botanical Garden.

FLORISTS' FLOWERS.

JAPANESE CHRYSANTHEMUMS.

IN compiling the following list of varieties I have included only the very best kinds for exhibition purposes. It does not contain the novelties of last season, as these need to be tested further before their merits can be appraised. Much interest was centred last season in the beautiful yellow variety named after the Hon. Mr. Lopes. This supplied some of the finest blooms of the year, but in a few cases it caused disappointment, as the flowers sometimes, even from first crown buds, were almost single.

It is probable that practically every enthusiast will thoroughly test it again this year. The growth of the plant is especially strong, sturdy and of magnificent constitution. It flowers on the natural, first crown buds.

LADY ED. LETCHWORTH.—This also is one of the finest yellow varieties, the reflexing and incurving florets making a very deep and handsome flower. The plant is of moderate constitution, and blooms naturally on the first crown buds.

EXQUISITE.—This is a flower of large size, although not of particularly pleasing form, as the florets finish somewhat roughly in the centre. Like both the preceding varieties, it flowers on the first crown buds, and is a free and healthy grower of medium height. The florets are coloured dark chestnut, but they are golden beneath, and the reverse side shows freely.

LADY CRISP.—A variety of the best Japanese type as regards free and perfect development of blossoms. The florets are of a good substance and very long. The plant grows above medium height, and is inclined to produce an ungainly type of foliage, but the leaves are healthy. The colour of the flower is yellow, slightly splashed with chestnut in the case of the latest flowers. It should be taken at the first crown bud.

MASTER JAMES.—This forms a dwarf plant; the shoots are barely 3 feet in height, but it throws a huge flower. Those who have seen the large blooms on the delicate plants of Mrs. Chas. Penford variety will be surprised to see even larger flowers on the small plants of Mister James. It is one of the best exhibition varieties, but comes a trifle early on the first crown buds. The colour is crimson.

SIR FRANK CRISP.—The flowers of this kind reminds us of the old Godfrey's Pride, the florets being so numerous as to be a source of trouble when finishing the flowers for exhibiting. The plant is of medium height, and a splendid grower. The shoots may be stopped in March for developing the second crown buds, or they may be grown naturally and taken on the first crown.

MASTER DAVID.—This variety is chiefly remarkable for its lovely colour, which is a deep, rich crimson. The plant grows fairly tall and is very healthy. The flowers are freely produced and are of the reflexed form. The blooms develop best from the first, natural crown buds.

not extra robust in constitution, but they put plenty of strength into the blooms, which are best from the first, natural crown buds.

Two sports furnished two useful varieties, viz., Miss Annie Nicolls and Mrs. A. M. Falkner, the former a sport from Walter Jinks, and in consequence well known, and the latter from Edith Jameson, a lovely, but very late-flowering variety.

The Japanese varieties of 1908 that still hold foremost places as exhibition varieties are as follow:—

MELCHET BEAUTY.—A bronze flower which finishes well in the centre. Best taken at the first crown buds.

H. J. JONES.—One of the deepest of yellow Chrysanthemums. The plant is a very dwarf and sturdy grower, and flowers well from any bud, the florets being of great substance.

MRS. CHAS. PENFORD.—This does well when grown from late-rooted cuttings and trained to a single stem for the first crown bud. The plant is exceedingly delicate, but repays careful attention.

ROSE POCKETT.—The very large blooms of this popular variety are coloured old gold shot with a warm, reddish tone.

MRS. F. G. CARTER.—A dwarf and sturdy variety, flowering best on the first crown buds.

GEO. MILEHAM.—An incurved flower of great merit, having the best size, form and colour.

Of older varieties the following are still good:—F. S. Vallis, Mrs. F. W. Vallis, Mary Inglis, Mrs. G. Mileham, W. Beadle, Algernon Davis, Mrs. N. Davis, Mrs. A. T. Miller, Reg. Vallis, Mrs. W. Knox, Walter Jinks, J. H. Silsbury, Bessie Godfrey, Lady Talbot, Mme. Rival, Mme. P. Radaelli, Edith Smith, Valerie Greenham, W. A. Etherington, and Marquis of Northampton, the last named being a sport from W. A. Etherington. *H. S.*

THALICTRUM AQUILEGIFOLIUM.

THE *Thalictrums*, or Meadow Rues, supply the garden with many beautiful border and rockery plants, and the charm of the foliage of the greater number of the species is heightened by the beauty of their flowers.

One of the most beautiful and easily cultivated species is *Thalictrum aquilegifolium*, which, in its early stages of growth is often mistaken for an *Aquilegia*. Not only is the foliage graceful, but the feathery inflorescence is also remarkably pleasing. The flowers of the white variety (see fig. 91) much more resemble foam than do those of the *Tiarella* known as the Foam flower; indeed, the latter name might more appropriately be applied to this *Thalictrum*. The illustration was prepared from a photograph taken on a misty morning in the summer. The plants, with their many little flowers of creamy-white, make an attractive ornament in the border. Besides this white-flowered form, there are others with purple or reddish flowers, but the white variety is the prettiest.

In poor and dry soil this *Thalictrum* may be as little as 1 foot in height, but in a good border, not too dry, it will grow three times as high. The plant shown in the photograph was about 3 feet high. *T. aquilegifolium* will flourish in either sun or shade, and its accommodating ways are an advantage to those who have to furnish a border with flowers which will thrive under the partial shade of trees. It was introduced to cultivation in 1731, and is propagated by division or by seeds. *S. Arnott, Dumfries.*

SPEECHLY AND HIS BOOKS.

(Concluded from page 193.)

In the second edition of the *Treatise on the Pineapple*, the then novel method of heating by means of steam is described, and drawings of a Pine pit designed to be heated in that manner are given. It was expected that the steam which was confined in a chamber beneath the tan-bed would find its way through the plunging material and maintain a steady, moist heat, but the expectation was not realised in practice.

In *The Treatise on the Culture of the Vine*, Speechly first describes the varieties he knew or cultivated. Of these he enumerates 50, but some were synonymous, and a good many worthless. Following this, the best method of making a vine border, and the material of which it should be composed, are discussed. Bone-dust he considered decidedly beneficial. He speaks, further on, of the possibilities involved in crossing varieties, of seeds and the raising of seedlings, and discourses on propagation by layers and cuttings. The cuttings, previous to Speechly, were never less than 16 inches in length, but he operated with eye-cuttings, an expedient which originated with the Rev. Mr. Mitchell, Thornhill, about the year 1774-5. These "eye" cuttings were about 4 inches in length. Speechly cultivated vines to a large extent trained to the rafters of Pine stoves. He mentions leaving over 20 feet of young rod and fruiting it all its length the



[Photograph by S. Arnott.]

FIG. 91.—*THALICTRUM AQUILEGIFOLIUM ALBUM.*

GEO. J. BUNYARD.—This is another flower of rich colouring. The form is distinct, the florets incurving and interlacing, and showing much of their reverse sides. It should be stopped as recommended for the variety Sir F. Crisp.

BEECHAM KEELING.—This develops a large flower, but the plant grows too tall to become very popular, even when the crown buds are taken.

MISS ELLIE GREEN.—The medium-sized plants develop a flower of pleasing form and pretty blush-pink colour. They flower a trifle later than the majority of Japanese Chrysanthemums, and should be stopped early for the purpose of developing the second crown buds.

J. LOCK.—Although not of very brilliant colour, the flowers of this variety are very large, and this tells in competition. The plants are

MRS. L. THORN.—This is another of the yellow kinds and one of the best. The flowers are exceedingly large, the florets interlacing in a delightful manner, and forming a mass of yellow petals. The plant is a good grower, and flowers best on the first crown buds.

REV. R. D. EVES.—Although not one of the largest, this is certainly one of the most beautiful of Chrysanthemums. The flowers are compact, of beautiful form and colour. Early plants should be stopped for the second crown buds, but the variety does well later if taken at the first crown buds.

SPLENDOUR.—The flowers of this variety are curled and interlaced as if to form a club or knob. It should be flowered on first crown buds and propagated early, as the flowers require an unusually long time to mature.

second year, but the rods were left on only every other plant, the others being cut down to three to five eyes and reserved for fruiting the succeeding year. After fruiting, they, in turn, were cut down. He allowed no lateral growth whatever. The back wall of the Pine stove was furnished by one or two rods being set apart for the purpose, shoots being trained downwards from them. For the vinery proper he seems to have preferred a span-roof structure, but there were also lean-to's, and some of the latter were constructed so that the vines were all trained to the back walls.

A short chapter on grafting demonstrates Speechly's accomplishments in that practice which he carried to extreme lengths, having had as many as 16 varieties on one stem.

Red spider and thrips would appear to have been the great enemies of the vine in Speechly's day as they are still, and his advice to cultivate on rational principles, not to keep the vineries too hot, but to ventilate freely on all favourable occasions, and to keep the vines freed constantly from superfluous growths, are as opportune now as then. For a very long period his 19½ lbs. cluster of Syrian Grape remained the heaviest and largest bunch produced in Great Britain. This was in 1781, and it was not till 1874, when Mr. Hunter, of Lambton, produced a Black Hamburgh weighing 21½ lbs., that Speechly's large bunch took second place as regards weight. The volume concludes with an interesting description of old vines and vineyards. Mention is made of the Hampton Court vine, and of that at Valentine's, near Ilford, which, at that time, covered the roof of a Pine-stove 70 feet by 18 feet. It was said that the crop in the year previous to that when Speechly examined it sold for £100, but this Speechly doubted. I saw the vine some 20 years ago, and it was then reduced to very small proportions. A house with a vine covering its front is depicted as growing at Northallerton, and many curious details of the outdoor cultivation of vines are given. As in the volume on the Pineapple, this, also, is illustrated with several plates. According to Miss Amherst, the two volumes were reissued in one in 1821, but I have been unable to trace the single volume. *R. P. Brotherton.*

THE ALPINE GARDEN.

LITHOSPERMUM.

No plants are better suited for planting in exposed rockeries than the *Lithospermums*. The flowers are either white, blue—the blue of the *Gentians*—or a rich shade of yellow, some even approaching orange. The European kinds are either blue or white-flowered, the American species are yellow or yellowish. They are either herbaceous plants or dwarf shrubs, and all flower freely. I have in my garden, at the foot of a well-exposed wall, a tuft of *L. rosmarinifolium* which has flowered from the beginning of the winter without interruption.

The blue-flowered *Lithospermums* are dwarf shrubs with two exceptions, *L. purpureo-cœruleum*, which is an herbaceous species, and *L. Gastonii* (see fig. 92). The hedges and some of our wild underwoods near Geneva are adorned in summer with *L. purpureo-cœruleum*. This plant prefers the shade, but it will grow well in sunny places, where it will develop in May and June an abundance of beautiful deep-blue and purple flowers.

The beautiful *L. Gastonii*, which grows in the Central Pyrenees, is a rare plant, and seldom seen in gardens. It is half herbaceous and half shrubby; the leaves are deep green and hairy, and the large flowers, produced in April and May, of a very deep and soft blue, the buds being purple. The plant grows best in peat or leaf-mould in partly-shaded places.

The following species are shrubby and frutescent:—

L. fruticosum.—This forms a small shrub 2 feet or less in height. The wood is hard, and the narrow, dark-green leaves form something like a brush at the end of the branches. The small flowers are axillary, of a good blue colour, and borne at the top of the branches in small blue bunches. The plant grows wild in the south of France, in the oriental Pyrenees and on the littoral. Its oriental limits are upon the Mont de la Ste. Baume, above Toulon. A beautiful tuft of this rare plant was exhibited at the Ghent Quinquennial Exhibition, 1908, by M. Firmin de Smet. The plant prefers limestone as a rooting medium, and flowers from May till autumn.

L. oleaeifolium.—This species also grows in

although the *Index Kewensis* makes them synonymous. The plant is a low, running species, covering the soil (in *L. fruticosum* the stems are erect), and the leaves are more lanceolate, shorter, broader and reflexed at the edges. The flowers are deep blue, but the buds are purple. It blooms throughout the whole summer and till winter time. The plant hates limestone, which kills it, which is not the case with *fruticosum*.

L. graminifolium (see fig. 93).—All over the Italian peninsula and on the strand of the Adriatic, flourishes a *Lithospermum* which is celebrated for its most brilliant blue flowers. I was once ascending the Monte Summano, near Vicenza, when my eyes were suddenly arrested by a slope covered with a glorious azure of blue



[Photograph by T. Smith.]

FIG. 92.—*LITHOSPERMUM GASTONII* IN WALMSGATE GARDENS, LINCOLNSHIRE.

the eastern Pyrenees, near the hermitage of St. Ansol, and is the dwarfiest of all the *Lithospermums*. It grows between stones or in the crevices of the rocks, the long stoloniferous growths covering big spaces. The leaves are oblong, whitish, silky and shining. The flowers are light blue and pink, forming small bunches. They appear early in spring—April and May. I have a specimen growing in a wall facing south which flowers sometimes as early as March. This rare species makes a good garden plant, and is easy of culture.

L. prostratum.—This native of the western Pyrenees is quite different from *L. fruticosum*,

flowers. Judge of my surprise when I recognized an old friend in *Lithospermum graminifolium*. At a glance it seemed as if the whole mountain was covered with it. Some *Serapias*, the beautiful pink flax (*Linum viscosum*), *Viola heterophylla*, and other treasures surrounded it here and there, and the picture which the plants presented was most beautiful. The blue of the Italian sky was reflected in the meadow. This *Lithospermum* forms a small, dwarf shrub, covered with long, narrow, greyish leaves, and with numerous clusters of flowers, the buds being pink. It prefers a sunny and dry situation on the limestone.

L. PETRÆUM (SYN. *MOLTKIA PETRÆA* and *ECHIU PETRÆUM*) is near to *L. graminifolium*, but is more shrubby, more erect, and the leaves are shorter. It grows in Dalmatia, and is well-known in gardens. The plant succeeds well in dry and sunny places, where it will flower from May till October.

L. ROSMARINIFOLIUM, from South Italy, Calabria, Agruges and other neighbouring districts, is the species I like best, as it flowers the whole winter through. It forms a small shrub about 6 inches high, bearing leaves very similar to those of the Rosemary. It blooms with great freedom, the flowers being pink in the bud stage. The plant is not particular as to soil, and will grow in limestone as well as silica; but it requires a sheltered and sunny position. The deep blue of its flowers is exquisite.

Several *Lithospermums*, either yellow or white-flowered, are natives of North America. The best is *L. canescens*, of the south-western United States. But the plant is tender and not easy to cultivate. Its deep-orange flowers are a beautiful sight, and a plant in bloom is one of the most brilliant pictures in a garden. *L. angustifolium*, *L. longiflorum* and *L. multiflorum* are also to be recommended, with their yellowish or lemon-yellow flowers. *Henry Correvon, Floiraine, near Geneva.*

THE SMALLER EPILOBIUMS.

THE large Willow-herbs, it is known, are the wild-gardener's greatest trap and curse. Handsome, and even splendid though one may think *E. hirsutum* or *E. angustifolium*, it is absolute suicide to admit either within any approachable distance of the garden. But it is unjust that the smaller Willow-herbs should be included in the same condemnation, seeing that one of them is certainly not a ramper, while the other two can easily be restrained. All the same, I do not advise anyone to decorate their moraine with *E. Fleischeri* or *E. Dodonæi*. These two species are similar; *Dodonæi* abounds in the stony banks and beds of Swiss rivers, an elegant, narrow-leaved plant of graceful growth, reaching a foot or so in development, and producing throughout the summer months on into autumn a splendid profusion of big, starry flowers, of that brilliant magenta-rose especially associated with the Willow-herbs. It is a very difficult plant to collect, as it sends its twiggy stems far down and down into the shingle before it makes a few fibrous roots. On the other hand, it comes profusely from seed, and is of the very easiest possible culture, especially recommended as a most valuable, late-summer decoration for rough, stony places (or paths) in full sun. But it ramifies and spreads too freely to be safely invited into the choice moraine.

EPILOBIUM ROSMARINIFOLIUM is a surprise among Alpine plants. It has the graceful port of a *Jussieu*. I saw it for the first time last year on hot, rubbly slopes above Waidbrück in the Schlern-Dolomites. Apparently this species does not ramify or spread, but from one central, tap-rooted crown sends up a number of very dainty, slender stems, willowy and erect, clothed in the narrow Rosemary leaves that give the plant its name. I should say that 18 inches to 2 feet made the usual limit of its stature; from each crown three or four stems aspire with a delicate yet wiry grace that almost recalls *Dierama pulcherrima*. For, when I say that the stems rise erect, it must be understood that they are not stiff nor stocky, but strong in that resilience which has the look of frailty, as they rise diverging from the crown, and yield, ever so little, to their load of blossom. For the inflorescence of *E. rosmarinifolium* is a very loose spike of big, brilliant flowers, a trifle larger in size and solidier in shape than those of *E. Dodonæi*; and also, if my memory serves me, of a rather hotter and cleaner rose-purple than those of any other *Epiobium* that I can remember. It struck me then as having a tropical, exotic beauty, and I anticipate that it would prove a jewel for hot, rough

places in the garden. I found it impossible to collect at the time, but hope to rear a good stock of it from seed.

Of *E. luteum* and *E. latifolium* I hope this season will give me a tale to tell; of *E. Hectorii* and *E. glabellum*, small trailing species, I do not conceal my opinion that they are among the gardener's most ubiquitous and pervasive little pests. *Reginald Farrer.*

NOTICES OF BOOKS.

CHRYSANTHEMUM CULTURE.*

THIS is a handbook written by an expert, chiefly for amateurs—an ever-increasing army. The manner in which they and also allotment holders have taken up with the cultivation of the Chrysanthemum, especially the early-flowering varieties, astonishes even Mr. Wells. He gives in outline the methods of the American grower, which, owing to the climate in that country, differ so widely from those employed in our own country. We note an account of the cultures of Mr. Totty, of Maddison, New York, the most prominent raiser of Chrysanthemums in the U.S.A.; and of those of Mr. Pocket, who went from England to Australia in 1878, and who has

or full of details. When we are informed that the Honourable Mrs. Evelyn Cecil, from her girlhood, has had access to a library famous for its early books and manuscripts, and that it was her delight to decipher the quaint characters of mediæval scribes, and to grub among the National Pipe Rolls and Treasury Papers, while she was still so little of a bookworm as to find pleasure in flowers and the garden, we are able to comprehend how it is this historical disquisition stands apart and alone. She has had, moreover, access to letters and accounts in numerous private collections, and hence her work contains much valuable information not obtainable from other books.

In the portion of this work devoted to early gardening, as in preceding editions, the importance of gardening in the social economy is somewhat belittled. The exceedingly interesting accounts of fruits, especially that in connection with the reign of Edward I., show that extensive orchards and vineyards must have existed at that time. Chaucer and other poets who are referred to, afford us illuminating glimpses of domestic, as opposed to monastic gardens, which were essential not only for the production of "worts" for cookery, but also for medicinal purposes. Not only so, but the quantity of flowers used on special occasions of rejoicing and for ecclesiastical ceremonies which are also referred to, must have been enormous. Mention is made of flowers in relation to home life, but their use was even more extensive than the authoress indicates. The custom of decorating beds and bed-chambers on special occasions, and the use of flowers for personal adornment, wearing them on the arm and in the ears, are all well attested.

The distillation of waters was carried out to an enormous extent, the account of the Earl of Northumberland's requirements proving that a very large area of ground would be required to grow the herbs for this one purpose. The authoress does not fail to remark that in large establishments there were two gardens, a private one within the moat and another outside, in which useful plants were cultivated. The extraordinary gardening designs of the time of Henry VIII. are pleasingly remarked on, and it must be remembered that these expensive gardens were not uncommon, Maitland relating how the Earl of Winton laid out just such another, only, of course, on a smaller scale.

The mid-period between Elizabeth and Anne provides many interesting details, and the authoress discusses the probability of *Le Notre* ever having been in England. This is quite a new suggestion, which, however, the authoress does not favour. The amount of research involved in working out this problem is apparent from the notes. Among other data two letters from *Le Notre* to the Earl of Portland are included. In one, the latter is thanked for "a so beautiful present," and his protection invoked for his nephew "in his little voyage." The second letter begins by thanking the Earl for his kindness to the nephew, and, among other things, requests him to procure the acceptance of designs by the King and to furnish his nephew with any instructions regarding them. There is also in this part a detailed account for flower-roots which were brought from France by Gabriel Mollet, the cost being £115. With the exception of one dozen double Hyacinths and one dozen yellow Jonquils, there were all Anemones and Ranunculi. One of the former, "a very lovely Anemone, a *pluche*, raised this year by the florist *Sieur Oger*, which is extremely bizarre in its colours," is priced 15 livres and is the dearest.

The chapters devoted to the eighteenth century are occupied largely with remarks on the rise and progress of landscape gardening. With many others, the authoress deplures the wholesale destruction of the many, beautiful, formal gardens entailed by the general adoption of the "natural" system. In discussing the part taken by Switzer, she makes one mistake in failing



[Photograph by T. Smith.]

FIG. 93.—LITHOSPERMUM GRAMINIFOLIUM IN WALMSGATE GARDENS, LINCOLNSHIRE.

(See p. 212.)

raised a number of the finest large-flowered Japanese varieties, of which a long list is given. The methods of the American growers make interesting reading, especially for the English amateur. The way in which the Americans exhibit the plants and flowers at their shows is also described, and might, in some directions, be followed here. The book contains a great deal of information on matters connected with the propagation, treatment in general, exhibiting, dressing and packing of the blooms, soils for potting, insect and other pests, and lists of Chrysanthemums most suitable for various purposes.

A HISTORY OF GARDENING IN ENGLAND.†

In the preface to the present edition, the authoress expresses the belief that this volume still remains the best work of reference on the history of gardening in England. This is the case, for, though one or two books on somewhat similar lines have appeared since 1896, the date of the second edition, none is so comprehensive

* Wells's *Book on the Culture of the Chrysanthemum for Exhibition, Decoration, Cut Flowers, and Market*. 4th edition, revised and enlarged. Published by the author, Merstham, Surrey. Price 1s. 6d., post free.

† By the Hon. Mrs. Evelyn Cecil (the Hon. Alice Amherst). Third and enlarged edition. (London: John Murray. Price 12s. nett.)

to credit him with the inclusion of Cornfields in his grand garden, which he shows he does in observations on plate 38 of *Ichthyographia Rustica*, vol. iii., and in the Appendix inserted in the second edition, Switzer, in reference to this very matter, expressly states: "I was always a promoter of this farm-like way of gardening before it was used by anybody in any place, in Great Britain."

The matter relating to the nineteenth century is almost wholly rewritten, and an additional chapter is added on the progress made in the present century. Attention is drawn to the part played by writers on gardening throughout the centuries, and a brief history of the *Gardeners' Chronicle* does justice to the high position that journal has always occupied in the gardening world. The bibliography has been slightly extended, but this is, perhaps, the least satisfactory portion of the volume, the names of many books being omitted, and in some cases not all the editions of those named are enumerated. Many of the old names of plants are also misapplied, but it is no wonder that lapses should occur in such an encyclopædic work. The infinite pains to secure accuracy which the authoress has taken are shown in almost every page. *R. P. Brotherston.*

The Week's Work.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Roses.—These plants, like most other forms of vegetation, are showing unusually early indications of growth, and it may be feared that they will suffer for it during the cold winds that may be expected during April. However, it is necessary to keep abreast of the work, therefore the pruning of Roses must be commenced soon, starting with those varieties which are hardiest and most vigorous in growth and constitution.

Carnations.—In gardens where it is customary to lift newly-rooted layers in autumn and pot them into 3-inch pots for wintering in cold frames, the present time is suitable for planting them in their permanent quarters. The soil selected for them should have been worked well and manured liberally, as advised in an earlier Calendar. If this has been done nothing will now be required beyond firming and levelling. If a considerable area is to be devoted to these plants, and, more especially if the soil is of a heavy nature, it is desirable to mark out the area into smaller beds, such as will accommodate five or six rows of plants, forming an alley between each bed. This plan not only serves the convenience of the grower, but has the effect of draining the surface soil. When all is ready take the plants from the pots carefully, and plant them firmly at equal distances in straight lines. After the planting, make the beds over neatly and apply a dusting of soot the same evening. Occasional applications of soot in showery weather throughout the season will be beneficial.

Pinks.—Cuttings of Pinks which were taken last year soon after the flowering period, and rooted in boxes, pots or frames, may now be transferred to the open ground. Suitable situations may be found in front of the hardy flower border, or immediately on the side of paths in any part of the garden. If Pinks are planted in colonies or mounds, and a little well-prepared soil is afforded them at the time of planting, they usually produce a very fine effect. There are several improved varieties of Pinks now obtainable, and they are a valuable feature in any garden.

Hardy flower border.—It is not too early to carefully treat hardy flower borders with the Dutch hoe in order to thoroughly loosen the surface. Many plants of a trailing habit, such as *Iberis*, *Helianthemum* in variety, *Phlox formosa*, and *Aubrietias*, are improved in condition if some fine soil is worked over the roots, and the stronger growths pegged down to the soil. *Asters* and *Phlox decussata* should have their growths thinned out, merely removing weaker ones, or others as well, in cases where they are too numerous. Many of the more vigorous

growing of the mossy *Saxifragas*, if divided now, replanted, and a little fine soil worked in round the roots, will grow speedily and make good edgings for borders. Birds being very troublesome to these *Saxifragas*, it is desirable to stretch threads of black cotton just above the plants.

Montbretia.—We make a practice of lifting *Montbretia* corms late in autumn, storing them in boxes containing sand and leaf-mould, which are wintered in cold frames, because, in our district, the wet during winter is detrimental to the corms. They are now starting into growth and require planting out again. *Montbretias* are not fastidious in regard to soil, but the addition of well-decayed manure and leaf-mould usually has a good effect. A few of the best varieties would include *Prometheus*, *George Davison*, *Lady Hamilton*, *Ernest Davison*, *Westwick*, *Hereward*, *Lord Nelson*, and *Germania*.

General work.—The improvement in the weather has enabled the ground work to be pushed forward. The lawn mower will soon need to be brought into use, but in the meantime continue to sweep and roll the lawns frequently. This treatment will not only improve their appearance, but will contribute to the easy working of the mower. Spring-bedding plants are fast coming into bloom. Every means should be taken to make them appear as effective as possible by frequently stirring the surface soil with the Dutch hoe and keeping them free from weeds. The improved strain of *Polyanthus* makes an excellent show; any plant of particular merit and of good colour should be marked for seed-saving purposes. Seedlings of *Polyanthus* which have been pricked out in boxes and wintered in cold frames may now be planted out in some out-of-the-way corner of the garden. Ivy which has become untidy should now be cut back; it will soon make new growth.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Habenaria.—There are at the least four or five distinct species of this pretty, terrestrial Orchid which are well worth adding to any collection, viz., *H. pusilla* (*militaris*), *H. rhodochila*, *H. carnea*, *H. carnea nivosa*, and *H. Susannæ*. Plants of *H. rhodochila* that are now showing their flower-spikes should be placed quite close to the glass in the warmest division of the house, and be afforded copious root waterings until all the flowers are expanded. When the blooms are over, the plants should be allowed to die down naturally and enter upon their long season of rest. The other varieties mentioned are commencing to grow, and may now be repotted. Select long thumb-pots, place an oval piece of crock over the hole at the bottom, and then some smaller pieces, allowing the base of the tuber to rest upon these. Keep the top of the tuber just below the rim of the pot, and then half fill the receptacle with pot sherds, before putting in the compost, consisting of one-half fibrous peat and loam, one-half finely-chopped *Sphagnum*-moss, some finely-broken crocks, and a small quantity of coarse silver sand, well mixed together. The potting should be done moderately firmly, and the plants afterwards placed in a warm temperature and as near to the roof glass as possible, so that they may grow freely. Sprinkle lightly the surface of the compost with moisture whenever it becomes dry, and when the new growths are seen pushing up through the compost, the quantity of water may be gradually increased. In their season of full growth, *Habenarias* may receive an almost unlimited quantity of moisture.

Eulophia guineensis.—This West African Orchid makes a beautiful flowering plant, sending up during the month of August strong spikes of large, rose-lipped flowers, which last fresh for a long time. Growth is now starting, and the plants should be treated as recommended in a former Calendar for deciduous *Calanthes*. With this exception, it does not require such a light situation.

Lissochilus giganteus.—Plants that are now commencing to grow should, if repotting is necessary, be attended to without delay. Use a mixture of good, fibrous loam, leaf soil, and fine crocks, with a little river or drift sand. Rather deep Orchid pans are the most suitable recepta-

cles, and immediately growth recommences stand them in a water-tight pan or a wooden tub a size or two larger than the pots. The water should at first be several inches deep, increasing it as the growths develop until about three-parts of the pots are immersed. Plants that do not need larger pans should have the surface of the old soil carefully removed down to the tubers, and fresh potting materials substituted. Grow the plants in the sunniest position of the hottest house, when, if strong enough, they will soon develop their spikes of large, red-mauve, scented blossoms.

Miscellaneous species.—The tall-growing *Renanthera coccinea* thrives best when trained up a moderate-sized Birch pole, and it is astonishing how thickly the roots entwine themselves around the wood. The plant should be placed in a sunny position at one end of the hottest house, and be well sprayed overhead several times a day. The better known *R. (Vanda) Lowii* should also be placed in the same house, but the foliage should not at any time be exposed. *R. Imshootiana* thrives best in the cooler division of the Mexican house, but with rather less sunshine than is generally afforded to the other occupants. Plants of this brightly-coloured species will now be producing their flower-spikes, and should be kept only just moist at the roots. Such plants as *Aërides*, *Saccolabiums*, strong-growing *Angræcums* as *A. sesquipedale* and *A. eburneum*, which have lost a number of their lower leaves, may be shortened and repotted. Other plants of these Orchids requiring more root room should be seen to at once, for, with the increase of daylight and sun-heat, their roots will soon begin to grow, and the growing points are very tender, being easily injured by the slightest touch. Place them in well-drained pots filled with *Sphagnum*-moss well incorporated with small crocks.

THE APIARY.

By CHLORIS.

Overhauling the hives.—The spring examination of the hives is the most important inspection of the year. The state of the larva is a most important consideration. Next note the quantity of brood, the strength of the colony, and the condition of the comb, i.e., is it old or broken, does it contain an abnormal number of drone cells, or do the combs contain too much pollen? Then the floor board must be scraped and all the waste matter, cappings, &c., be removed. Should any of the combs be found defective, these should be placed on the outsides, and as soon as they are emptied of honey they must be replaced with full sheets of foundation properly wired in. If the hive is not water-tight the bees should be transferred to another hive that is.

Stimulative feeding, &c.—Where the store of food is low it will be necessary to feed with syrup, and when the beekeeper needs strong colonies for gathering honey when the fruit-trees are in bloom it will be well to stimulate the queen. To do this, if the colony has plenty of honey stored, all that is required is to break the capping by bruising with a knife daily; but when the stock of honey is low food must be put in feeders. In 3 pints of boiling water dissolve 5 lbs. of good sugar, together with $\frac{1}{2}$ ounce of salt, and let the syrup boil for a few minutes, taking care not to let it burn. When cool fill a jam bottle to the brim, and over the mouth tie securely a piece of strong calico. This, whilst still warm, can be placed over the feed hole in the quilt, and warmly wrapped up to prevent the heat escaping. Cold syrup should never be given to bees. There is a warning required for the hurrying and sometimes careless beekeeper: be very careful not to spill any of the syrup, for it will cause robbing. Should robbing follow, then the entrances must be contracted so that only one bee may enter or leave the hive at one time, and do the feeding in the evening. When empty the bottle should be removed carefully; slip a piece of slate, zinc or glass over the hole in the quilt to prevent the escape of bees. In some districts pollen-producing plants are not sufficiently plentiful to supply all the pollen required for brood rearing. The beekeeper should place a skep—an old one if possible, having a strong honey and propolis smell—in a sunny corner, well protected from cold winds. Scatter flour, peaflour, or oatmeal amongst chaff in the skep and the bees will soon discover it and use all they require.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, G.C.B., Moulton Paddocks, Newmarket.

Cherry trees in pots.—The fruits of the earlier varieties will now have formed stones, therefore the atmospheric temperature may be raised to 55° to 60° at night, and may reach during the day under the influence of sunshine to 75° to 80°. Continue to syringe the trees freely on bright days, employing for this purpose soft water warmed to the temperature of the house. On the first appearance of aphides, the house must be vaporised with one of the nicotine preparations, for, if unchecked, aphides cause the fruit to become bitter and unfit for table use. Cherry trees do not require much manure water, but occasional top-dressings of rich loamy soil are of great benefit to them. See that the drainage does not become choked through the action of earthworms. Attend carefully to waterings, never allowing the soil to get dry. Trees which have set an extra heavy crop should have some of the fruit thinned out with a pair of scissors, those which show signs of swelling most freely being left on the tree.

Cherry trees in borders.—These will now require treatment similar to that recommended for pot-trees. Care must be taken that the soil about the roots is in a moist condition.

Young vines.—The plants which were inserted as "eyes" in January should now be ready for a shift into 6-inch or 7-inch pots. A suitable compost is one consisting of fibrous loam, three parts, leaf-mould and old mortar rubble, one part, with a sprinkling of soot. The soil should be nicely warmed by placing it in the house a few days before it is required for use. It should be in a fairly dry state so that it may be rammed firmly in the pots, this being necessary to ensure the plant making a sturdy growth. The vines are very tender and susceptible to injury at this stage, therefore the potting should be carried out in the house where they are growing. Support each plant with a neat stake, and in making the ties be careful to allow for the swelling of growth. Shade the plant from sunshine for a few days, after the potting operation, but, beyond this, expose them to all the light possible, and give them every encouragement to make vigorous growth, placing the pots in a position near the glass. Syringe them once or twice each day, but apply water only sparingly to the roots until these latter are actively multiplying in the new compost.

Suckers.—Remove any suckers found at the bases of Peach or other fruit trees. They can be best removed by pulling them clean away from the bottom, using a sharp knife to sever any pieces of bark which may be torn away during the process. Suckers, especially on Fig trees, rob the trees of a very great deal of the nutriment that should go to the development of the crop.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Barton Hill, Westwood, Yorkshire.

Shading.—I have found Parisian lath blinds admirably adapted for shading plant houses, but the Japanese blinds made of split Bamboos are less expensive, and may be purchased with fittings that can be readily adapted for fixing the blinds in position. Take advantage of the first opportunity to get all the blinds into their places in order that they can be used when occasion requires.

Climbing plants.—Thin out the weak growths and train the others into their proper positions.

Codiaeum (Croton).—Plants which were notched and treated as advised in a previous Calendar may now have the tops severed by successive cuts made at intervals. After the operation, the tops may be repotted carefully into suitable-sized pots, according to the size of the plant; these should be placed in a close, moist atmosphere, such as that of the Cucumber house, where they may be shaded from direct sunshine and syringed frequently, until they have become sufficiently established for renewed exposure to sunshine. In order to get highly-coloured specimens the plants should be grown as near to the glass as possible, and exposed to as much sunshine as the leaves can stand without injury. Later in the season, as the pots become filled with roots, the leaves will develop higher colour, if frequent light top-dressings of some approved chemical fertiliser are given.

Coleus.—This plant is useful for decorative purposes, owing to its capacity for quick development, its easy culture, and its brilliantly-coloured leaves. Propagation may now be carried out, by taking cuttings, and inserting them singly into small pots, which should be placed in an intermediate house, and arranged thinly enough to allow the plants to develop their side shoots perfectly. The plants are all the better for a fair amount of sunshine, but if it is excessive they may be protected by a thin blind of tiffany during the very hottest portion of the day. If large, pyramidal plants are desired, give them plenty of pot room, but it will not be necessary to stop the shoots.

Pelargonium.—Plants of Zonal-leaf Pelargoniums which have started into growth will now need repotting. Cuttings which were rooted with a view to supplying bloom in autumn may be stopped to induce growths to come away from the bases of the plants. The earliest plants intended for spring flowering that were placed in their final flowering pots during the autumn will now be producing their flower-buds. If the training of the shoots has not been done it ought to be carried out without further delay, as the weight of the blooms, when fully developed, may cause injury to the plants. For this purpose, select neat, green stakes and loop up the growths securely with green raffia tape. At this stage the plants will benefit by alternate waterings of clear soot water and occasional top-dressings of a favourite fertiliser.

Bouvardia.—Plants raised from cuttings which were inserted during the autumn or spring will now require larger pots. If they are still growing two or three together in the thumb pots they may be repotted without division, and, in this case, they will make useful specimens for flowering early in autumn. As the season advances, the stock of Bouvardias should be gradually hardened preparatory to placing the plants in their summer quarters, such as a well-ventilated span-roofed pit or frame. Ventilation must be carefully carried out, fluctuations of temperature avoided, and, in order to avoid the use of much fire-heat, the ventilators must be closed early in the afternoon. A shading with some light substance will be required during the hottest part of the day. The long shoots must be pinched at intervals as they develop until about the end of June. Bouvardias are benefited by a gentle spraying overhead daily in favourable weather. For potting purposes, the following compost may be recommended: fibrous loam, two parts; peat and leaf-mould, each one part, with plenty of silver sand and powdered charcoal to keep the soil porous.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Protecting fruit blossom.—Some trees of the Apricot are all ready in full blossom, and the earliest varieties of Peaches are unfolding their flowers, yet we have registered 7° and 9° of frost here on several nights during the past week or two. Fortunately, the atmosphere was dry, and the blossoms have not suffered up to the present. In cases where protecting material is employed for these fruit trees, great care should be exercised in its use, in order to avoid any coddling of the trees. If the covering is used when it is not needed, or if too thick a covering is employed, it will be sure to have a harmful effect in bringing forward the blossoms too quickly and also in making them tender. The best practice is to be prepared to protect the trees when occasion arises, but to let the blossoms develop as naturally as possible, employing protection only when sharp frosts threaten to occur. These temporary means of protection should be so placed that they may be drawn easily over the trees when required. If there is no coping to the wall, a board 11 inches in width may be fixed in a slanting direction against the top of the wall or immediately over the tops of the trees. Into this board a few hooks can be driven to hold the rings fixed to the canvas or tiffany. At the base of the lines thin rollers should be fixed enabling them to be easily drawn up and down by means of good-sized cords arranged on pulleys or rings fastened to the top. Some stout poles should be stood against the walls in a slanting direction to support the blinds 2 feet or 3 feet from the wall

at the base, and thus prevent them from coming into contact with the blossoms.

Aphides.—Aphides or flies will soon become source of trouble to fruit-growers. All trees that are known to be subject to attacks should be syringed with quassia extract or some other safe insecticide just previous to the flowers expanding. This spraying may serve to keep the trees clean until the fruits are set, when the syringings may be resumed. The insecticide should be applied in the forenoon of a fine day so that the trees may become dry before night.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Seakale.—The cuttings which were laid in the ground early in winter are now ready for planting, which should be done as soon as growth commences, otherwise they will be injured during the process. If the ground was trenched and manured in winter, it will now require little more than forking over. Seakale needs a light but rich soil. The young plants must be lifted carefully and planted in rows 2 feet apart, allowing 15 inches between the plants in the row. The roots may be planted by means of an ordinary garden dibber, and only a small quantity of soil need be placed round them. After planting, the crowns should be just under the ground level, so that by hoeing the surface of the bed the holes will be loosely filled. As soon as the young growth is well above the ground, the plants should be examined and the shoots on each reduced to one; this treatment will secure good crowns for forcing next winter. Seakale roots still unforced may be planted closely together behind a north wall, covering them 8 inches deep with fine leaf-mould or ashes; they will then afford a supply of Seakale during May.

Celery.—Plants raised from seed a month ago should be pricked off as soon as they are large enough to handle into a box frame, where a genial, moist atmosphere can be maintained and where the lights can be removed as soon as the young plants have become established in the soil. Celery loves water, therefore the plants must never be allowed to become dry at the roots.

Mushrooms.—Prepare beds for furnishing supplies during June. The best situation for them is in a shed with a north aspect. The front of the shed may be covered in with mats to prevent the wind unduly drying the beds. The beds should be formed on the ground, and made to a depth of 18 inches, as it will be necessary for them to maintain a temperature of 80° for at least a week after the spawning is done. When the beds have been properly spawned and covered with a thin layer of soil, the whole may be covered with straw to the depth of 4 inches. Collect further quantities of horse manure so that other beds may be made up behind a north wall to produce a few small Mushrooms during July, when the weather is usually too hot to admit of Mushrooms being grown indoors. Outdoor beds should be made with a slanting surface, so that when covered with straw they will throw off the rain.

Sorrel.—The present is a good time to make fresh plantations of Sorrel. When removing the old plants from the forcing pit they may be pulled to pieces and used to make up new beds. The young plants may be put in rows 2 feet apart on rich soil, and may be allowed to remain two years before being forced.

Sweet Basil.—Seeds may now be sown in a gentle heat. Prick off the young seedlings, when large enough to handle, into pots or boxes. This herb requires a temperature of 65° for the next month, but the plants may be gradually hardened off for planting out on a warm border in June. For the winter supplies, seeds will need to be sown about the middle of August for placing in a Cucumber pit, where they may remain during the winter.

Sweet Marjoram.—Sow seeds in a gentle heat and pot off the young plants when they can be handled. This herb does not require much heat, and may be grown in a cold pit during winter if frost is excluded. Plant them on a good border as soon as the plants are large enough, and in September lift sufficient plants and pot them to produce supplies in winter. The soil for Sweet Marjoram should consist of loam and peat in equal proportions.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR APRIL.

SATURDAY, APRIL 2—
Soc. Franç. d'Hort. de Londres meet.

TUESDAY, APRIL 5—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Prof. Henslow on "The Use of the Spectroscope in the Study of Plant Life.") Scottish Hort. Assoc. meet. Bournemouth Hort. Soc. Spring Sh. (2 days). British Gard. Assoc. Ex. Council meet. Bournemouth Spring Fl. Sh. (2 days).

WEDNESDAY, APRIL 6—
Liverpool Spring Fl. Sh. (2 days).

THURSDAY, APRIL 7—Linnean Soc. meet.

MONDAY, APRIL 11—
Surveyors' Inst. meet. United Hort. Ben. and Prov. Soc. Com. meet.

WEDNESDAY, APRIL 13—
Roy. Caledonian Hort. Soc. Spring Sh. in Waverley Market, Edinburgh (2 days). Cornwall Daffodil and Spring Fl. Sh. at Truro (2 days).

FRIDAY, APRIL 15—
Dutch Bulb Growers' International Sh. at Haarlem (10 days).

TUESDAY, APRIL 19—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. R. Lloyd Praeger on "The Wild Flowers of the West of Ireland.") Devon Daffodil and Spring Fl. Sh. at Barnstaple (2 days).

WEDNESDAY, APRIL 20—
Roy. Hort. Soc. of Ireland Spring Sh. (2 days). Huntingdonshire Daffodil and Spring Fl. Sh. Roy. Hort. Soc. General Exam. 6 to 9.30 p.m.

THURSDAY, APRIL 21—
Ipswich and E. of England Daffodil and Spring Fl. Sh. Falmouth Spring Fl. Sh. (2 days). Linnean Soc. meet.

FRIDAY, APRIL 22—Exeter Daffodil Sh.

MONDAY, APRIL 25—Surveyors' Inst. meet.

WEDNESDAY, APRIL 27—
Roy. Hort. Soc. Exam. of School Teachers.

THURSDAY, APRIL 28—
Midland Daffodil Soc. Exh. at Birmingham Bot. Gardens (2 days).

SATURDAY, APRIL 30—
Brussels' International Hort. Exh. (4 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—46° 1'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, March 30 (6 P.M.): Max. 57°; Min. 39°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, March 31 (10 A.M.): Bar. 29.5; Temp. 43°; Weather—Sunshine.

PROVINCES.—Wednesday, March 30: Max. 50° Ireland S.W.; Min. 43° Preston.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous and Border Plants, Lilioms, Hardy Bulbs, &c., at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials, Border Plants, Hardy Bulbs and Tubers, at 12; Roses, Fruit Trees, &c., at 1.30; Trade sale of Miscellaneous Bulbs, at 12; Japanese Lilioms as received, at 2; Palms, Plants, Bays, &c., at 5; at Protheroe & Morris' Rooms.

FRIDAY—
Imported and Established Orchids in variety, at 12.45, at Protheroe & Morris' Rooms.

The International Exhibition.

Our readers will see from the official notice printed on another page that a public meeting is called for Tuesday next to consider the advisability of holding an International Horticultural Exhibition in London in 1912, and to appoint a Committee of Management. It is scarcely necessary at the moment to state in detail the reasons which have been urged again and again in these columns why such a project should command the hearty support of all who have

an interest in the progress of horticulture. As a body, it has always been the fair boast of gardeners that their sympathies and aspirations are not limited by ties of nationality. Horticulture, like science generally, knows no nationality; in furthering its interests, horticulturists are united the world over, and some of the pleasantest experiences and highest aspirations many of us have known, have come to us during visits made to foreign shores for the purpose of inspecting the international exhibitions. It is good for horticulturists and for horticulture that colleagues, whose work is carried on in places separated by such distances that frequent observation or association is impossible, should meet from time to time to compare notes and report progress.

In these matters Englishmen have received much in the past 40 years, but they have given little. Time and again they have been received with the utmost cordiality by the various nations, and have had placed before them all the different phases of horticultural practice in which each nation excels, but for ourselves we have been content with our annual shows ever since that great event in British horticulture, the 1866 exhibition. Readers will not need to be convinced that the time is now ripe for the repetition of that great effort. The development in horticulture since that period has been so vast that it is difficult to estimate, whilst the amelioration of certain plants under cultivation and the introduction of new species to these shores, have altered greatly the character of our plant houses and even the landscape effects all over the country.

It is intended to organise the forthcoming exhibition on lines similar to those which led to success in '66, and this fact in itself is highly satisfactory. The Royal Horticultural Society, as the one great representative association in these isles, has taken the initiative, but the Council is desirous that a separate Committee of Management shall be appointed, which shall fully represent every branch of horticulture. In order to be prepared for eventualities, a guarantee fund is to be established, and, towards this fund, the society is prepared to make a liberal contribution, which will be at once a substantial indication of the society's sympathy with the movement and a great help in making it successful. The consideration of details may be undertaken later on, but for the present it is necessary for all to realise that the event is one of the greatest importance, and one that should call forth all the energy, enthusiasm and resource of which the horticulturists of this country are capable. The exhibition must be planned on the broadest lines; for, on the worthiness of the ideal which inspires it, will depend the success which it achieves.

It is not possible, nor is it desirable, that commercial considerations should be entirely disregarded, but we are sure that these will not be the principal interests which British exhibitors will pursue. They will be actuated by a desire to obtain the best foreign exhibits it is possible to attract, and by the determination to exhibit British horticulture to the notice of distinguished guests in such a manner as to surpass all previous efforts. Such an event as we are now considering is one of the most effective means of extending goodwill among nations, and of establishing ties of

friendship which are not of personal significance only, but serve to consolidate international goodwill. We trust, therefore, that a good scheme will be evolved, and that it will be taken up in true British fashion and carried to a successful issue.

Mexican Cacti.

The Cactaceæ of North-Eastern and Central Mexico is the title of a paper by W. E. Safford in the Smithsonian Report for 1908, pp. 525-563, with 15 plates and 24 figures in the text. Mr. Safford's monograph has also been issued separately. It is written for the cultivator rather than the botanist, but there are many details of interest to both; the result of the author's observations on a journey through the regions named. Mr. Safford's explorations were mostly in the Northern States, Nuevo Leon and Coahuila, but he also visited Aguas Calientes, Guadaluajara, Guanajuato and Mexico. He describes (and figures) the characteristic species and their habitats. He also gives some interesting information respecting notable collections of cultivated Cacti, in the United States, at New York and Washington, under glass, and at Tucson, Arizona; Riverside, California; Mesilla Park, New Mexico; and Laredo, Texas, in the open air. In Mexico City, too, he met with some enthusiastic cultivators. Respecting the cultivation of Cacti, it is not generally known that they grow in a great variety of soils and situations. In the *Botany of the Biologia Centrali-Americana* (vol. iv., p. 248), we read that "some flourish in the sands of the seashore; others in clay; others in loam; others in sandy and stony wastes; others in grassy pastures; whilst many grow on rocks or in crevices of rocks. In some districts they grow associated with other plants, forming a mixed vegetation; in others they have almost or quite exclusive possession of wide areas." In Mexico, they range from the sea-coast to an altitude of 13,000 feet.

Mr. Safford has a special paragraph on the edible fruits of Cacti. Apart from the "tunas," fruits of *Opuntia* and *Nopalea*, which are marketed on an extensive scale, there are many others. In his own words: "The triangular forms of *Cereus* usually bear edible 'pitahayas,' some of them of enormous size and delicious flavour; and in Texas and Northern Mexico several long-spined 'alicoches' (*Echinocereus* spp.) are known to Americans as 'Strawberry Cacti,' from the delightful flavour of their succulent berries." The acid, "Limas de Viznaga" is the fruit of *Echinocactus longihamatus* of Nuevo Leon. Various *Mamillarias* bear the smooth, red "chilitos" and the Currant-like "garambullas" is the fruit of the arboreal *Myrtillocactus geometrizans*. Mr. Safford states that the seeds of nearly all *Pachycerei* ("cardones") are used by the Indians for food, and the "Higos de tetetzo" of southern Puebla (*P. columnatrojani*) are a regular food-staple, sold in the markets of Tehuacan.

The greatest concentration of Cacti is in Mexico, where there are probably not fewer than five or six hundred species; but it is difficult to form an approximate estimate, since a large number of the proposed species have been founded on single, often dead, plants received in Europe.

Demonstration Trains.

We employ vans in this country to go through the counties from village to village for the purpose of propagating religious or political ideas. Americans have adopted recently this practice for the purpose of disseminating agricultural and horticultural information. A circular just issued gives an account of the agricultural and horticultural demonstration train which is to be inaugurated under the auspices of the Southern Pacific Railway Company.

The College of Agriculture of the University of California will place in the cars of this train full and comprehensive exhibits of illustrative material, covering various phases of agricultural and horticultural work in that State. These exhibits are designed to show better methods of work upon farms, and to indicate more economical methods of production. Men from the College of Agriculture, and men from the farms of the State, will deliver, at stopping points, lectures on the methods which should be adopted in order to increase the value of the agricultural and horticultural products. Similar demonstrations will be given with respect to stock raising, dairying, poultry raising, and kindred industries. It is the aim to make these meetings practical. Discussion is invited and questions will be answered.

The equipment of the train will include five cars, containing exhibits to be used in illustrating and demonstrating the points brought out in the discussions. A special coach will serve as a lecture room in places where no hall is available.

Where the place of meeting is elsewhere than in the train, it will be made known locally through the railway agent, newspapers and other sources of information.

The horticultural division will be under the charge of Professor D. Clarke. The exhibit will include young fruit trees, showing their condition when received from nurseries, and illustrating methods of preparation for planting; methods of pruning will also receive attention. Systems of spraying will be illustrated with the object of introducing better and more economical methods. The subject of plant diseases will be under the charge of Professor R. E. Smith, of the South California Pathological Laboratory of the University of California. There will be a comprehensive exhibit of the various blights, mildews, rusts, and smuts that attack cultivated plants. Altogether 18 speakers are enumerated, and a list of 53 stations is given, showing the date and time at which the demonstration train will reach each station; the time at which the meeting will commence, and that of the departure of the train. The scheme is a fine one, and worthy of adoption with modification in our own country. Though we cannot hope for one of our great railway companies to imitate the Southern Pacific, motorcars would prove, in such a country as ours, yet more convenient for the purpose. It would be a sweet revenge of time if the instrument of so much rural discomfort were pressed into the service of rural development.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place on Tuesday, the 5th inst. At the afternoon meeting, the Rev. Prof. G. HENSLOW, V.M.H., will deliver a lecture on "The Use of the Spectroscope in the Study of Plant Life."

A HYBRID STRELITZIA. In the Mexican house at Kew, states the *Kew Bulletin*, there is now in flower for the first time a hybrid *Strelitzia*, the result of crossing, 11 years ago, *S. Regina* and *S. Augusta*, the former being the mother parent. The plant is 5 feet high and has 10 leaves shaped as in *S. Augusta*, but the petioles are 18 inches long and the blades 2 feet by

tuft of leaves spring from a fleshy root-stock, the petioles are 3 feet long and slender, and the blades measure a foot by 4 inches; the peduncle is about a yard long, the spathe is glaucous-green tinged with red and the flowers are of a bright orange colour, the conspicuous arrow-shaped fused petals being violet-blue. Both the parent species are also in flower in the same



[Photograph by C. P. Ratti.]

FIG. 94.—HYBRID STRELITZIA RAISED AT KEW.

(*S. Regina* × *S. Augusta*.)

15 inches. The peduncle is axillary, 18 inches long; the spathe is horizontal as in *S. Regina*, with several vertical flowers, which expand in slow succession and are of a pale, watery-yellow colour. There is a wide difference between the two parents, *S. Augusta* having a woody stem 12 feet or more high and distichous leaves, of which the petioles are 6 feet and the cordate blades 3 feet long; the peduncle is very short and stout, the spathe is purple and the flowers are white. *S. Regina* has no distinct stem, but the

house. The hybrid has been named *S. kewensis*. The dimensions of the flowers are as follow:

	<i>S. Augusta</i>	<i>S. Regina</i>	<i>S. kewensis</i>
Sepals length ...	6½ in.	4½ in.	5 in.
Petals „ ...	4¾ in.	3½ in.	3¾ in.

The general appearance of the flower in *S. kewensis* resembles that of *S. Regina* more closely than that of *S. Augusta*. The stamens are enclosed in the fused petal sheath in the hybrid and in *S. Regina*, but are exposed in *S. Augusta*.

The small hooded petal of the hybrid, however, is much more like that of *S. Augusta*, and it is also interesting to notice that the lilac-pink patches at the base of the petals in *S. Augusta* are also present in a similar position in the hybrid.

LINNEAN SOCIETY.—The next meeting will be held on April 7 at 8 p.m., when the following papers will be read:—Mr. AUGUSTINE HENRY, M.A., F.L.S., "Elm Seedlings showing Mendelian results"; Mr. F. CHAPMAN, A.L.S., "On the Foraminifera and Ostracoda from Soundings, chiefly Deep-water, collected round Funafuti by H.M.S. 'Penguin.'" A ballot will be taken in respect of Miss WINIFRED ELSIE BRENCHLEY, B.Sc. (Lond.), Mr. JAMES MEIKLE BROWN, B.Sc. (Lond. and Sheff.), and Mr. HAYWARD RADCLIFFE DARLINGTON, M.A., LL.M. (Cantab.), as Fellows.

BRUSSELS INTERNATIONAL EXHIBITION.—Reports from Brussels regarding the temporary horticultural exhibition to be opened on May 30, in connection with the General Exhibition, at Brussels, indicate that it promises to be a very great success. In view of the possibility that the buildings set apart for the temporary show may be inadequate to accommodate the numerous exhibits, the authorities have announced that positions will be allotted in the order in which applications are received. Requests for space should be addressed to Monsieur LE COMMISSAIRE-GENERAL DU GOUVERNEMENT (Concours horticoles), 12, Rue de Berlaimont, Brussels. No applications can be entertained after April 15.

"FRENCH" GARDENING EXHIBITION.—The exhibition of intensive culture, which we announced last week would be held under the auspices of the Stour Valley Gardening School, at the Horticultural Hall, Vincent Square, Westminster, took place on Wednesday, March 23. The result was disappointing so far as "French" gardening was concerned. Four classes were provided for in the schedule, the first being open only to owners of gardens not exceeding a quarter of an acre in extent; a second, to gardens not exceeding one acre; a third, to larger gardens; and a fourth for the best exhibit of 12 Lettuces. Owing to the absence of any class cards, it was not possible to find to which of the classes entries belonged, but it seems that in one class a 1st prize was awarded the FELS FRUIT FARM, Mayland, Essex. This exhibit comprised rather poor and stained White Passion Lettuces, the small, Little Graine Noir variety with very firm and good hearts, fair Witloof Chicory, Seakale, Cucumbers, Rhubarb, Canadian Wonder Beans, French Breakfast, Long and Round Scarlet Radishes; sprays of *Asparagus plumosus*, Daffodil flowers, and, on one side, but not in the competing collection, a fine young trussed cockerel, eggs, Apples, butter, Broccoli, and herbs. No 2nd prize seems to have been awarded in any class, but in one case a 3rd prize was given to Mr. H. P. FITZGERALD, Ledwells Gardens, Goudhurst. In another class, Messrs. T. & T. GILLET, Sturry Road, Canterbury, had a small Cabbage Lettuce like the variety Golden Ball, very good Mushrooms, and Radishes. A Silver Bowl offered in the Lettuce class was awarded to the CHRISTCHURCH FRENCH GARDEN for some really good produce, that had apparently been grown in frames, the variety being evidently of All the Year Round. There was quite a small collection of vegetables with some model glazed span frames, from the STOUR VALLEY SCHOOL. Other exhibits included examples of frames, cloches, and garden sundries. Messrs. SUTTON & SONS' and Messrs. VEITCH & SONS' collections of vegetables remained from the preceding day's show. To Messrs. SUTTON, the judges awarded a Gold Medal, and they made a

similar award to a superb collection grown under ordinary English conditions at the *Times* EXPERIMENTAL FARM, Sutton Place, near Guildford, of which Mr. CHARLES FOSTER is the superintendent. This collection was much superior to any of the exhibits of so-called French gardening produce.

CHILDREN'S FLOWER SHOW.—The 5th annual show of bulbs grown by children attending the schools within the burgh of Dunfermline was held on March 19. The show was a great success, the quality of the blooms being, in many cases, exceptionally good. The bulbs were sold to the children by the Dunfermline Carnegie Trust at a nominal price, and comprised Hyacinths, Crocuses, Tulips, and Daffodils. There were also competitions for drawings showing the growth and development of plants and for a collection of pressed or dried leaves.

NASTURTIUM.—In America *Nasturtiums* rank with Sweet Peas as the most popular and best-selling annuals. In Britain the *Nasturtium* (*Tropaeolum*) does not take anything like the same high rank. It may be that the American climate ensures better results than can be obtained here. One often hears the remark that *Nasturtiums* do best in a poor soil. Certainly they bloom best in a dry season when growth is restricted. In Essex a very large acreage is grown every year for seed, much of which is exported. Is there not an opening for someone to specialise in the flower? One of the American introductions this year is Queen of Fordhook, a tall variety, the green foliage being blotched or variegated with white and yellow, making an attractive plant, as the rosy scarlet flowers show up exceedingly well.

THE LATE MR. DAVID THOMSON.—Mr. HARRY J. VEITCH writes to inform us that it is proposed to establish a memorial to perpetuate the name of DAVID THOMSON. It is suggested that the memorial take the form of a fund from which to grant pensions to aged and infirm gardeners, or their widows, such pensioners to be always known as "the David Thomson Memorial Pensioners," the fund to be administered by the committee of the Gardeners' Royal Benevolent Institution, of which Mr. THOMSON was for so many years a very warm friend and to which he subscribed so liberally. When it is remembered how much Mr. THOMSON did, during a long and strenuous life, for the advancement of every branch of gardening, what a noble example he always set by his uprightness of character, his great courtesy, and his readiness always to impart to others any information which could benefit them in any way, it is felt that such a proposal as that now suggested is not only due to his memory, but will be most cordially welcomed by every lover of gardening. Mr. THOMSON's great abilities were recognised during his lifetime by many honours. He was one of the original recipients from the Royal Horticultural Society of the Victoria Medal of Honour, and was awarded the Neill prize by the Royal Caledonian Horticultural Society. The many friends of Mr. THOMSON are desirous that the memory of so good a man—one of the very foremost gardeners of his generation—should now be perpetuated in a manner which shall be worthy of him and shall serve as an incitement for future generations of gardeners to follow so noble an example. The undersigned will thankfully receive contributions from any who desire to further so good an object:—HARRY J. VEITCH, V.M.H., treasurer of the Gardeners' Royal Benevolent Institution, Royal Exotic Nursery, Chelsea, S.W.; JAMES WHYTECK, president of the Scottish Horticultural Association, The Gardens, Dalkeith Palace, N.B.;

J. W. MCHATTIE, vice-president of the Royal Caledonian Horticultural Society, Public Parks Office (City Chambers), Edinburgh; GEORGE MONRO, V.M.H., Covent Garden Market, London, W.C.; J. H. GOODACRE, V.M.H., The Gardens, Elvaston Castle, Derby; W. HENDERSON, The Gardens, Balbirnie, Markinch, N.B. We commend this movement to the consideration of our readers. DAVID THOMSON was undoubtedly one of the greatest gardeners this country has produced. His name deserves commemoration, and no better mode of effecting this could be devised.

THE PRODUCTION OF CAMPHOR.—Notwithstanding the threatened destruction of the camphor industry in China many years ago, by the chemical production of an imitation camphor, together with experiments that have been carried on more recently in Ceylon, in extracting camphor from the leaves and twigs of the trees introduced into that island, the produce in China and Formosa still goes on, but with diminished supplies from some well-known districts. On the other hand, some new sources have been discovered in the provinces of Hupeh and Hunan. From the report of the British Consul at Foochow, it would seem that a very serious diminution occurred in 1908, when the exports amounted to only 9,644 cwts. of the value of £69,302 against those of 1907, which amounted to 23,231 cwts. valued at £271,433, thus showing a decrease of 13,587 cwts., and a loss of £200,000 in value. The average values per cwt. for the three years 1906, 1907 and 1908 were £11 15s., £13 15s. and £7 3s. 9d. respectively. The falling market is attributed to the speculation both by foreigners and Chinese in 1907, when abnormally high prices obtained; the inevitable collapse followed, partly due to the fear that synthetic camphor could be produced at lower rates than the natural product, and partly because the home markets were overstocked, while there were excessive supplies at Foochow, and holders, both at export and import docks, were anxious to get rid of their stocks on account of the declining rates. Besides which, Formosa camphor was being disposed of at continually declining rates. With regard to the fear of any shortage in the general supplies, as we have before said, this question seems to be partially answered by a report that has recently appeared to the effect that a Chinaman, who has had some experience in the camphor industry, has discovered considerable numbers of camphor trees (*Camphora officinalis*) in the province of Hupeh, near Shing-Ruo-Chao, in the neighbourhood of the Tayeh Mine district, and also near Lin-Yang in the province of Hunan. It is further stated that he has obtained the monopoly for the production of camphor in both provinces for a period of 15 years, and has further obtained the assistance of 30 workmen from Formosa to instruct the natives in the manufacture of camphor, as the local population are entirely ignorant of the business. The work is said to have begun already, and that Hankow will be the market for the product.

PUBLICATIONS RECEIVED.—*Board of Agriculture and Fisheries.* Acreage and Live Stock Returns of Great Britain, with Summaries for the United Kingdom. (London: Eyre & Spottiswoode, Ltd.) Price 5d.—*Ontario Department of Agriculture.* Bulletins: Farm Underdrainage: Does it Pay? by W. H. Day, B.A.; Farm Drainage Operations, by the same author. (Toronto: L. K. Cameron.)—*Royal Botanic Gardens, Kew, Bulletin of Miscellaneous Information.* Some of the Contents are: The Genus *Myxopyrum*, Garden Notes on New Trees and Shrubs, Trees of the North-Eastern Transvaal, Diagnoses Africanæ, Forests of the Gold Coast, Miscellaneous Notes.

(London: Darling & Son, Ltd.) Price 3d.—**Fruit Tree Pruning**, by George Quinn. (Adelaide: R. E. E. Rogers, Acting Government Printer.) Price 1s. 3d.—**The Forest Flora of New South Wales**, by J. H. Maiden. Vol. IV., Part 7. (Published by the Authority of the Government of the State of New South Wales.)—**The British Fern Gazette**, edited by Chas. T. Drury, March, 1910. (The British Pteridological Society, Kendal, Westmoreland.)—**United States Department of Agriculture**: Varieties of American Upland Cotton, by Fred. J. Tyler. (Washington: Government Printing Office.)—**Purdue University**. Twenty-second annual report of the **Agricultural Experiment Station**, Lafayette, Indiana. For the year ending June 30, 1909. (Lafayette, Indiana: Press of Burt-Haywood Co.) Bulletins: The Estimation of Fat in Unsweetened Evaporated Milk by Modified Methods, Growing Better Gems, Steer Feeding, Dairy By-products as Supplements to Corn for Fattening Hogs. Circulars: Growing Onions from Seed, by J. Troop and C. G. Woodbury; Agricultural Extension, by G. I. Christie; The Farmer's Orchard, by J. Troop and C. G. Woodbury; Corn Shows and Selecting, Preparing and Scoring Exhibits, by A. T. Wiancko and G. I. Christie; Industrial Contests for Boys and Girls, by G. I. Christie and Henrietta W. Calvin; Milk Production, by O. F. Hunziker and O. E. Reed.—**Gardening for the Million**, by Alfred Pink. (London: T. Fisher.) Price 1s. net.—**Journal of the Royal Horticultural Society**, edited by F. J. Chittenden, F.L.S. (London: Spottiswoode & Co., Ltd., New Street Square.) Price 7s. 6d.—**The Book of Nature Study**, edited by J. Bretland Farmer. (London: The Caxton Publishing Company, Surrey Street, W.C.)—**Department of Agriculture**. Bulletins, Central Experimental Farm, Ottawa: Strawberry Culture, by W. T. Macoun. (Ottawa: Fisher.) The Problems of Plant Diseases, by Mr. H. T. Güssow. (Ottawa: O. H. Parmelee.)—**Ontario Department of Agriculture**. Bacterial Blight of Apple, Pear and Quince Trees, by D. H. Jones. (Toronto, Ont.: L. K. Cameron.)—**U.S. Department of Agriculture**. Traction Plowing, by L. W. Ellis. (Washington: Government Printing Office.)—**Department of Agriculture, Federated Malay States**. Coffea robusta, by W. J. Gallagher, M.A. (Federated Malay States: Kuala Lumpur.)—**Colonsay—One of the Hebrides**, by Murdoch McNeill. (Edinburgh: David Douglas.)

NOTES FROM A "FRENCH" GARDEN.

THE importance of proper organisation is now emphasised in the numerous operations which have to be carried out daily. The packing of the produce for the market, the ventilation of the crops under glass, and the watering must all be done without hindrance to the planting and sowing of the successive crops.

The gathering of the produce is always accomplished as early in the day as possible to keep it fresh and cool. Watering should also be done before 9 a.m., as the plants would receive a check were it done when the sun was excessively hot.

The Cos Lettuces under the cloches are now hearting, and will, with favourable weather, be ready for cutting within a fortnight. The French varieties for forcing are self-hearting, and require no tying. The shading must be carefully done before 10 a.m., or the leaves would become spotted.

The Carrots in the frames are now very forward; ventilation is given freely both day and night, whenever possible. This crop requires frequent waterings, and the lights may be removed entirely should a steady rain be promising.

Cauliflowers planted among the Carrots are touching the glass; the frames should therefore be raised bodily to give them more head room. The paths between the frames are filled with dry, well-broken manure, and brought level with the soil within the frames to prevent it rolling off when they are removed for the planting of Melons later.

Cauliflowers are planted among the Passion

Lettuces, and the Onions in the open ground. A full-sized bed measures 65 feet by 11 feet, and accommodates five rows, 18 inches being allowed each plant in the row. If needed, seeds of Cauliflowers can now be inserted in the open.

Onions planted in the autumn are now forming their bulbs, and will be ready for marketing within a fortnight.

The young Melon plants are growing well; ventilation is given as often as the weather permits. The amount of water they receive is very moderate, but a light spraying on fine days greatly assists the growth.

The first stopping of the main stem is done at the third leaf as soon as the growth of the plants

seedlings may be pricked out in the open at 10 or 12 inches apart about four weeks after the sowing.

Turnips sown on the hot-beds in the middle of March have been thinned out, and ventilation is given them day and night. When the weather is calm, one light is open at the top, the next at the bottom, and so on, to establish a free circulation of air.

Shoots of Artichoke "de Laon" have been potted in 60's pots. When they become well established they are hardened off and planted early in May, in heavily-manured ground, 2 feet 6 inches apart. It is absolutely essential to forward their growth to assist the plants to de-



[Photographs by J. H. Gibson.]

FIG. 95.—VIEWS IN DR. PRIDMORE'S "FRENCH" GARDEN NEAR WESTENHANGER, KENT.

allows, and, generally, one week before planting them in their final quarters.

The frames and lights have been removed from the Passion Lettuce, being required for the Melon beds. The first row of frames set late last week have since been planted with Melons, two plants per light. Some growers set three plants and mature only one fruit per plant, but experience has proved that this system leaves not sufficient room for the roots, whilst the frames are filled with too many leaves, which entails extra labour in the pruning of the plants and allows very little light for the growth and ripening of the fruits.

Seeds of Endive "La Rouennaise" and "La Ruffec" may be inserted among the Melons. The

velop their inflorescences before the autumn, as they can then better withstand the frosts of the following winter.

Tomatoes that were pricked out in the middle of March are well established, and receive ample ventilation. The space now occupied by the Melon plants in the nursery bed will be utilised for the second pricking out of Tomatoes (100 plants per light) late this month.

Celery raised from seed sown in February is now being pricked out in a cold bed, 24 plants under each cloche. The bell glasses are kept close and shaded till the seedlings are well established. It is essential to prevent any check to the plants, as this would cause them to run to seed during the summer. P. Aquinas.

THE STUDY OF TREES.

ON Thursday, March 17, Dr. Augustine Henry, Reader in Forestry at the Cambridge University, gave an interesting lecture on "The Study of Trees," at Carpenters' Hall, London.

He told his hearers that he would deal with species of trees, and also with their varieties. He reminded them that Darwin, when he wrote his *Origin of Species*, never defined what he meant by species, and that he (Dr. Henry) would not do so either, except that he would go so far as to say that species were "large groups." Among the European trees he remarked that it was a curious circumstance that many trees occurred in "pairs of species." There were, for example, two species of Oaks, two of Birches, and the same could be said of the Limes, the White Poplars, the Black Poplars, and the large tree Willows. He pointed out that, before man changed the face of the country, there were two great classes of land, the "alluvial flats" and the "hilly land," and that one of the "pair of species" grew in the former situation, and the other pair occupied the latter. This fact, he said, had been overlooked by foresters, even in Germany; moreover, gardeners and farmers had for hundreds of years been careful in their choice of seed, and had raised many varieties and sub-varieties, yet, in forestry, this had never been done, and not even the better of the two species had been always chosen. Of the two varieties of Oak (*Quercus pedunculata* and *Q. sessiliflora*), the only one that had been planted of late years was *Q. pedunculata*; whereas *Q. sessiliflora* was the better one to plant on dry, hilly land, since it had hairs on the leaves, which prevented excessive evaporation of water. He then instanced the two species of Birches (*Betula verrucosa* and *B. pubescens*), showing how *B. verrucosa* has glands on the leaves, which prevent rapid evaporation in dry weather, since these exude varnish, but that rain, when it falls, is able to penetrate the varnish and so nourish the trees. This species is a native of dry situations. *B. pubescens* inhabits wet, peaty soils, which are physiologically dry on account of the absorption of moisture by the roots being hindered by humous acids. A year ago the subject of crossing trees first attracted his attention. In studying the Black Poplars, he found that the tree commonly called the Black Italian Poplar was, in fact, a cross between *Populus nigra*, the old English Black Poplar, and *P. deltoidea*, the American species. The Black Italian grows by far the fastest of the three, making as much as 2 cubic feet of timber per year, a fact not to be overlooked by foresters, who look to vigour of growth. Its timber, though not, perhaps, of very good quality, is not easily inflammable, and would probably pass the tests for fireproof flooring. This tree was the result of an accidental cross made in a French nursery in the eighteenth century, and the question Dr. Henry asked was: "Can this phenomenon be repeated in other trees?" The astonishing vigour displayed by the "first cross" is common in other cases. Dealing with the Willows, he explained the origin of what is commonly called the "Cricket Bat Willow." This also is a "first cross" (*Salix fragilis* × *S. alba*, known as *S. alba cœrulea*). It was originally thought that *S. alba cœrulea* was only a variety of *S. alba*, except that, for some unknown reason, it grew much faster; but Dr. Henry has now shown its true pedigree. Like the Black Italian Poplar, it exhibits the extraordinary vigour of growth of a "first cross." It occurs only as a female plant, whereas the Black Indian Poplar occurs only as a male. Dr. Henry then dealt with the Lucombe Oak, which is a "first cross" between *Quercus Cerris* (the Turkey Oak) and *Q. Suber* (the Cork Oak). Passing on to the Elms, he pointed out that the Huntingdon Elm was a "first cross" between *Ulmus glabra* and *U. montana*, the former

being the species which grew on the alluvial flats, whereas the latter inhabited the hills. This originated in 1746, and it shows the characteristic of a "first cross" by growing with extraordinary vigour. The lecturer had been enabled to study the Elms last year as, owing to the exceptional amount of sunshine in the spring of 1909, Elms all over the country bore fertile seed in enormous quantities. He had sown 90 kinds of Elm seed in small plots, and the seedlings of the Huntingdon Elm followed Mendel's law of heredity, some showing *U. glabra* characteristics, and others *U. montana* in the proportion of three to one, whilst numerous new forms appeared in this second generation. Owing to lack of time, Dr. Henry was unable to deal with the other trees he had studied, but he told his audience that trees could probably be produced by cross-fertilisation, that would show in the "first cross" very vigorous growth, and he instanced the advantage to the forester of a fast-growing Ash or Walnut: how, in the first generation, we should obtain that vigorous growth, and how, by sowing seeds of that, we should be able to pick out forms exhibiting great vigour, that would breed true.

The lecture was illustrated throughout by lantern slides, and, at the conclusion, the chairman, Lord Kesteven, proposed a vote of thanks to Dr. Henry, which was heartily accorded.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

INTERNATIONAL HORTICULTURAL EXHIBITION.—Notice is hereby given that a public meeting will be held on Tuesday, April 5, at the Royal Horticultural Hall, Vincent Square, S.W., at 4 p.m., to consider the advisability of holding an international horticultural exhibition in London in 1912, and to appoint a committee of management. *W. Wilks, Sec., R.H.S.*, by order of the Council of the Royal Horticultural Society.

"DO EXHIBITIONS PAY?"—This question has no connection with the balance-sheets of exhibitions. It arises in a totally different sense, and one which can hardly fail to have special interest for horticultural exhibitors and traders, in view of the proposed international horticultural exhibition of 1912. In the general Press this question was asked recently, and replies were given to the effect that exhibitions do not pay the trading exhibitor. Naturally, to the ordinary trader or business man mere sentimental or even national considerations can hardly weigh against pecuniary loss. The incidence of the subject, so far as we are concerned, is somewhat narrowed, for it relates to international exhibitions of a general nature held in other countries, which seem to occur very frequently, seeing that from 1900 to 1908 no fewer than six exhibitions have been held abroad, at which British traders and manufacturers were expected to exhibit their goods at enormous expense. If foreign orders are obtained at such exhibitions all is well; if they are not, then great loss results, and it would seem that this is now the general experience. That, however, may be due to holding international exhibitions far too frequently. In the horticultural world, our traders have had considerable experience of home exhibitions, and can say, if they care to do so, whether as a means of advertising—for that is what it amounts to—the exhibition of their products is remunerative. It is well known that many of them expend great sums annually in exhibiting, and none can better tell than they whether or not it pays. If it does not pay, why, then, is the habit persisted in? Perhaps it may be pleaded that if they do not do so, if they fall out of the ranks of exhibitors and lose touch with the public, their business would suffer, even though exhibiting means to them a heavy financial burden. But any such plea would show the exhibitor to be between Scylla and Charybdis. It is earnestly hoped that his case is not so bad as that, and also that, amidst all his financial burdens arising from exhibiting, he finds means to live and prosper. But the question which

heads this article is raised in connection with the cost incidental to exhibiting at international shows in other countries. Some few of our leading traders have had large experience of that form of competitive advertising. How interesting it would be to learn from them, whether as a trading speculation it paid, or whether a determination to have British horticulture well represented at all cost dominated the decision. When the proposed international horticultural exhibition is held in London, many exhibits will be expected from other countries, traders and horticulturists who are our brethren across the Channel. Will they weigh the financial aspect of their exhibiting first, or will they come regardless of cost, not merely hoping but believing that their visits will be beneficial in every sense? It is in this latter spirit we look for their products and their hearty co-operation. Whatever may be urged about the frequency of international horticultural exhibitions abroad, here in Great Britain, at least, they have been rare. So seldom, indeed, have they taken place that we can hardly estimate the growth of horticulture since 1866. Thus, no complaint can be made against us, such as is now being made with respect to other nations, that the international gatherings are too frequent. There are those to-day praying they may be spared to see what it shall be possible for 1912 to bring forth. In relation to that exhibition, no British horticultural trader will ask "Do exhibitions pay?" The desire to participate in it will be overwhelming. May all engaged in thus forming the greatest gardening exhibition of the age find in it ample reward, in sentiment and in substance. *British Horticulturist.*

DESSERT APPLES (see p. 170).—With regard to Lord Hindlip, I agree with Mr. Pearson it is a splendid late dessert fruit, but I cannot say it is the best flavoured of all. My reason for omitting such a good variety was that, on a totally different soil from that at Lowdham, a light soil resting on gravel, we did not often get a good crop from Lord Hindlip. I am quite in agreement with the remarks concerning Lord Burghley, but this variety, worked on the Paradise stock and cultivated on a warm soil, did not canker nearly so badly as it is known to do in a heavier soil. Grown as a cordon, this variety was one of our best croppers, and though the fruits were small, they were much liked. *G. Wythes.*

CORYDALIS CHEILANTHIFOLIA.—A few weeks ago I drew attention to *Adonis amurensis* as one of that large number of plants which require to be well established before their merit can be appreciated. The *Fumitory* named above is another. It is far earlier than the old *Corydalis lutea*; the beautiful Fern like leaves, 6 inches or 8 inches long, begin to push in January, and when they are crowned, as they are now, with a profusion of blossoming spikes, clear yellow in colour, the plant takes high rank among spring flowers. I have it in a retaining wall without lime. I do not know whether it would take to old masonry as freely as *C. lutea*. It is a rampant spreader, both by runners and seeds, and should not be planted in the neighbourhood of choice Alpines. The first blossoms opened this year on February 10. *Herbert Maxwell, Monreith, March 28.*

A GARDENERS' CONGRESS.—It has been suggested that the time has arrived when the gardeners of the United Kingdom should meet together to discuss matters affecting their interests and profession. The chief difficulty in the way is to select a day and a time that would be convenient to any very large number of gardeners. Probably the first day of the Holland House Show at Kensington (i.e., on Tuesday, July 5) would be as good a day as any to secure a good meeting of representative gardeners from various parts of the kingdom. Gardeners generally are beginning to feel that, unless they co-operate in some way, the best positions in their calling are likely to be filled by men who have had no horticultural practice or experience. If any gardeners in sympathy with the idea of holding a conference will kindly send their names and addresses to me, I think I may say that the Executive Council of the B.G.A. will be only too pleased to co-operate and to defray the expenses of such a conference. *John Weathers, Talbot Villa, Isleworth.*

PRIMULA OBCONICA.—I am sending herewith some spikes of *Primula obconica*. I have measured several flowers over 2 inches across, and I have been told by visitors here that they are the finest lot they ever saw. *A. Bennett, Snelston Hall Gardens, Ashbourne.* [The flowers are amongst the largest we have seen.—Eds.]

PROTECTING PEACH BLOOM.—Is it necessary to protect Peach trees growing on walls out-of-doors against frost whilst in bloom? This question I know has been asked before, but has not, so far as I know, been satisfactorily answered, and, probably, no definite answer can be given. From long experience and extensive practice in the growth of this fruit on walls out-of-doors, I am led to the conclusion that an exaggerated importance is attached to the practice by many growers. At a garden over which I had charge for a good many years, we had a long, outside wall devoted to the growth of Peaches and Nectarines. A large proportion of these walls were effectively protected by glass copings and roller blinds, in the best and most orthodox fashion. In the same garden, a little distance away, was another wall, devoted to the same purpose, which for many years received no protection, although it was rather more exposed to the inclemency of the weather than were the protected walls. Yet the crops the trees bore on this wall were as good as were the crops on the protected trees, and failure was quite as infrequent. This is an important point, and well worth clearing up if possible, as the covering-up business entails the loss of much valuable time, and is adopted at considerable cost. Moreover, anything which will help to the cheaper, simpler, and more extensive growth of this delicious fruit will be a decided gain to growers. I refer to the subject now because the trees will soon be in bloom, and those interested can, if they wish, test the matter for themselves by leaving a tree or two unprotected, covering the other trees as usual. The results would make interesting reading. *Peachgrower.*

HOW TO GET DAHLIAS TO FLOWER EARLY (see p. 188).—I have frequently had plants of Cactus Dahlias in flower in Lancashire at the end of June. The old tubers were potted in 10-inch pots, and grown with very little forcing. As soon as the state of the weather permitted, they were moved into an unheated glasshouse, and in the first week in June they were placed in the open air for a few days. Many of them would have flower-buds on them at planting-out time. The holes were dug some time previous to planting, manure being worked in with the bottom soil. I always selected a sunny day to plant, so that the soil put round the roots would be warm. Instead of staking in the usual way, I placed around the plants a number of twiggy Pea sticks, with a band or two of string around them. *P. P.* (see page 188) states that "flowers from old roots seldom keep to a high standard after the first batch." If he means exhibition standard, I admit that the first batch would barely come up to that, but I did not notice any deterioration up to late autumn, and dozens of good flowers have been cut year after year in the second week in October from each bush for church decoration at the harvest festival. Two dozen plants were always planted in such a position that canvas could be placed over them in case of frost, in order to preserve the flowers for that occasion. *W. P. R., Cwmystwyth, near Aberystwyth.*

SOCIETIES.

ROYAL HORTICULTURAL. Scientific Committee.

MARCH 22.—*Present:* Mr. E. A. Bowles, M.A., F.L.S., F.E.S., Sir George Watt, Sir John Llewellyn, Messrs. A. Worsley, F. du Cane Godman, R. Hooper Pearson, W. Cuthbertson, J. Fraser, W. Hales, J. W. Odell, J. T. Bennett-Poë, H. J. Elwes, J. Douglas, F. J. Baker, E. M. Holmes, Dr. Voelcker, and F. J. Chittenden (hon. sec.).

Algae in water trough.—Dr. VOELCKER reported that the alga which he showed at the last meeting had been identified at Kew as *Phormidium laminosum*, and that treatment with copper sulphate at the rate of one part to 5,000,000 of water had proved effective in killing it.

Cyclamen latifolium.—Mr. A. W. SUTTON, V.M.H., sent two plants of *Cyclamen latifolium* for comparison with others recently shown, grown from corms collected by him in Palestine. He remarked that young corms were very difficult to obtain, because they are almost always deeply embedded in the crevices of the rocks, and it is only the large and overgrown roots that one is able to get without much trouble, with the result that the flowers then are not so large as they would be on younger plants. The majority of the *Cyclamen* he had seen in Syria are white with red base, but he had also seen self-coloured reds of various shades and often considerably larger than those shown.

Branching of mid-ribs.—Mr. E. A. BOWLES showed, on behalf of Canon ELLACOMBE, a leaf of *Carpenteria californica* having the mid-rib forking at about one-third from the base. He also showed a flower of *Iris reticulata* from his own garden exhibiting a similar phenomenon.



FIG. 96.—*PRIMULA MAXIMOWICZII*:
Flowers purple.

Primula Maximowiczii (see fig. 96).—Messrs. J. VEITCH & SONS sent *P. Maximowiczii*, which had been obtained from W. China at an altitude of 9,000 feet, and was now seen for the first time in cultivation. The elliptic, oblong leaves, with small teeth along their edges, are about 2 to 3 inches long, quite glabrous and without farina, and form a rosette. The scape, about 10 inches tall, bears many flowers, arranged verticillately as in *P. japonica*, having long, narrow, triangular bracts. The calyx is campanulate and about half the length of the corolla tube. The corolla is dark, clear purple, and has the lobes reflexed. On the motion of Sir J. Llewellyn, seconded by Mr. J. Douglas, a Botanical Certificate was unanimously recommended for the plant.

Monacious Salix.—Mr. E. A. BOWLES showed branches of *Salix cinerea* from Myddelton House, Waltham Cross, bearing both male and female catkins. Mr. FRASER said the pistils appeared to be metamorphosed stamens. He had seen a somewhat similar condition before in *S. aurita* in several successive years.

Seedling Violas.—A number of flowers of a seedling of *Viola hirta* from Devon, sent by

W. P. STARK, Esq., of Hillstead, Basingstoke, were shown. Their appearance suggested the probability of their being hybrids with one of the garden forms.

Pritzl's "Iconum Botanicarum Index."—Mr. H. J. ELWES brought forward the question of the republication with amplification of Pritzl's *Iconum Botanicarum Index locupletissimus*, which had been referred to in the Annual Report of the Council. He suggested that it was a matter that the Society might itself undertake with great benefit to horticulture, and a resolution embodying that idea was sent from the Committee to the Council.

NATIONAL CHRYSANTHEMUM.

MARCH 21.—A meeting of the Executive Committee of this Society was held at Carr's Restaurant, Strand, when Mr. Thomas Bevan occupied the chair. St. Peter's (St. Albans) Chrysanthemum Society and the Lytham Gardeners' Association were admitted to affiliation.

The interim financial statement was submitted, showing a small balance in hand. The report of the Floral Committee as to the trial of singles was submitted and adopted. The secretary, Mr. Witty, then reported on the arrangements that had been made with the Crystal Palace Co. The sum of £150 was offered for two shows, which will be held on October 5 and 6, and November 2, 3, and 4. It was resolved that the same be accepted.

A conference will be held in the Essex Hall, dealing chiefly with large show varieties, and the subjects will be left in the hands of the Schedule Committee. The Floral Committee meetings were revised as follows:—September 5 and 19, October 5 and 24, November 2 and 21, December 7 and 19.

An official visit of the Society will be made to the growers who have undertaken the trial of the single-flowered varieties. The committee will visit the nursery of Messrs. W. Wells & Co. on September 10 and 24, Mr. H. J. Jones on November 12, and Messrs. Cannell & Sons on December 10.

The chairman referred to the opening of the Brussels International Exhibition, and to the Chrysanthemum Show to be held there later in the season. He had already received promises of support from various members, and hoped others would contribute towards the display that it was intended the N.C.S. should make. In regard to the expenses Mr. Harman Payne said he hoped some official assistance might be procured, for the N.C.S. was probably the only society likely to exhibit, and it would scarcely be reasonable to expect the Society to incur heavy transit and other charges, especially as no corresponding benefit was likely to accrue to the Society or its members.

TORQUAY GARDENERS'.

MARCH 17.—The society's spring show was held at the Bath Saloons on this date, nearly a month earlier than that of the first Cornish exhibition—the Truro Daffodil Show. The display was the finest ever held under the auspices of the association, while the bright weather made it financially the most successful spring show on record. Amaryllis, Cyclamen, Daffodils, Schizanthuses, and Cinerarias were particularly prominent, Cinerarias being exceptionally fine. The 1st prize group of stove and greenhouse plants was greatly admired. There was very keen competition in the classes, and the exhibits were, as a rule, of high merit. Nurserymen contributed greatly to the attractions of the exhibition:—Messrs. ROBERT VEITCH & SON, Exeter, staged the hardy *Dracæna Prince Albert*, with leaves striped with green and white, *Magnolia Soulangeana nigra*, *Correa cardinalis*, *Illicium religiosum*, *Lithospermum rosmarinifolium*, *Cytisus kewensis*, *Clamatis montana rubra*, *Grevillea sulphurea*, *Osteomeles anthyllidifolia*, and a representative collection of rock-garden plants. The DEVON ROSERY, Torquay, had an excellent show of Azaleas, *Magnolias*, *Acacias*, *Genistas*, varieties of *Pyrus malus*, and cut blooms and pot plants of *Roses*. Mr. W. B. SMALE, Torquay, exhibited a splendid strain of Cinerarias, including the pretty *Coleus Lady Alverstone*, with spotted leaves, and an improved strain of *Primula obconica*. Messrs. BARR & SONS, London, had a magnificent display of *Narcissi*.

In the competitive classes the following were successful exhibitors:—Dr. QUICK, Mr. H. GRESWOLDE-WILLIAMS, Hon. HELEN CUBITT, Mrs. TOTTENHAM, Mr. R. P. KITSON, Mrs. E. R. LLOYD, Mr. F. FERSHOUSE, Mr. H. E. BOWRING, Col. CARY, and Mr. R. N. ACUTI.

DUTCH BULB GROWERS' INTERNATIONAL EXHIBITION AT HAARLEM.

MARCH 23-31.—The first Jubilee Flower Show of the Dutch Bulb Growers' Society was opened on Wednesday, March 23, by H.R.H. the Prince of the Netherlands. It formed part of a general scheme consisting, first, of a permanent exhibition of flowers planted in beds in the open ground, for which purpose a large area of the famous "Wood" at the south end of the town has been fenced in, and, secondly, of four special temporary shows which are to be arranged in handsome wooden buildings erected for the purpose.

The first of these indoor exhibitions commenced on March 23, and continued until the 31st.

The English members on the international jury were: Messrs. G. H. Cuthbert, Walter T. Ware, J. Duncan Pearson, G. Gordon, V.M.H., J. W. McHattie and Charles Pearson.

The inside display consisted, for the most part, of Hyacinths, Tulips, Lilacs, Azaleas and Rhododendrons, supplemented with other flowering

plants in ten days time the display will be magnificent, and visitors will then be able to see, in a small compass, many of the best varieties of bulbs for which Holland is so famed. Besides the show, the visitor will also be able to visit the many bulb nurseries in the immediate neighbourhood of Haarlem, and also those at Lisse, Hillegom and other places which are easily reached by the steam tram. In the town itself in the Klein Houtweg, are the show grounds of Messrs. E. H. Krelage and Son and Mr. Polman Mooy, while not far away are the Zwanenberg Nurseries of Mr. C. G. van Tubergen.

Just inside the entrance to the main building was an oblong grass plot on which was arranged a pleasing combination of Hyacinths—each plant was an example of good culture, and the harmony of the different colours employed was perfect.

At either of the four corners was planted the pale blue Enchantress variety, while between, at the ends, was the pretty pink kind named after Lady Derby, and at the sides L'Innocence and Yellow Hammer, with the rich reddish-purple blooms of Sir William Mansfield in the middle. Around this, in the centre, was a broad, gravelled path, and then filling up the space to the walls was a broad border of grass with oblong beds of Cinerarias, Tulips and Polyanthus Narcissi, and then again at the back of these were arranged Palms, Lilacs, Rhododendrons, Azaleas, Callas, and many other flowering and foliage plants.



FIG. 97.—VIEW IN THE HAARLEM INTERNATIONAL EXHIBITION DURING THE HOLDING OF FIRST SPECIAL SHOW.

plants, such as Cinerarias, *Primula obconica*, and Callas; whilst outside, the handsome parterre at the old Palace (now the Colonial Museum) end of the grounds and immediately in front of the chief temporary building was planted with Crocuses. Large beds of the pale purple Maximilian and the deep purple Agnes Maria varieties were set off with "King of the Whites" and the striped Albion, with just an occasional splash of a deep yellow kind. The flatness was relieved by the sunken grass panels on the interior of the designs and by the Box trees clipped in the form of spirals, obelisks, cannon balls and vases which were placed in just the right places—towards the edges. The whole design was excellently conceived and admirably carried out. It is intended that this scheme of formal gardening will be kept bright with fresh plants until the show closes on May 29, and that Hyacinths, Tulips, and hardy herbaceous plants will in turn replace the Crocuses when these are over.

From this parterre the grounds stretch for more than a quarter of a mile down a stately avenue of trees until a pretty wooden building is reached; this is devoted to a small collection of modern flower paintings, many of them being by the celebrated Haarlem painter, A. L. Koster.

On either side of the avenue there are beds of Hyacinths, early and late Tulips, Daffodils and plants which almost entirely fill up the space under the trees and extend right back to the boundary. At present the only bits of colour are furnished by Crocuses, Scillas and Chionodoxas, but

This hall communicated with a second one by a short corridor, that was lined on one side by *Prunus triloba* and on the other by *Pyrus Scheideckeri*. The general grouping in this interior hall was very similar to that of the first, but the arrangement was not so formal. The classes of Hyacinths in pans occupied the corners of the grass plot, and at the side were Lily of the Valley and *Primula obconica*, while in the middle were *Spiræas* and *Liliums* (see fig. 97). A large, round bed filled up the space in front of the exit; in this were Azaleas, *Imantophyllums*, *Primula obconica* (from Mr. CH. DEJES, Haarlem), of an exceptionally fine red shade; two varieties of *Polygonatum* (Solomon's Seal), Callas, and a big batch of the bright red tulip "Brilliant Star," which is well known for the lasting properties of its flowers.

The third building, which is situated on the right of the entrance to the park, was devoted to Amaryllis, pot Hyacinths, Tulips, *Begonia Gloire de Lorraine*, Freesias, *Gloxinias* and other flowering plants in pots, while the centre was a glorious mass of Lilac sprays arranged in tall vases. One particularly good scheme of arrangement was that of Messrs. D. and J. KEESSEN BROTHERS. A large basket of the pale Lilac President Grevy was in the middle, and was connected with trails of *Smilax* with others, at a lower level, filled with Marie Legraye (white), Charles X. and Audenken an L. Späth.

The following is a list of some of the most striking exhibits or novelties:—

(1) The group of Rhododendrons of Messrs. C.

B. VAN NES & SON at one end of the main building. Between masses of well-grown plants of Rhododendron White Pearl there was a lovely blush-pink variety named Princess Juliana, with a delightful wavy edge. It is unique in its class, and was raised by the exhibitors as the result of a cross between a Rhododendron hybrid and *R. Griffithianum*. Its great value is as a forcing variety.

(2) The large masses of hybrid Azaleas of Messrs. M. KOSTER & SON and Messrs. FELIX & DYKHUIS which were arranged on either side of the exit in the inner hall. In the exhibit from the former firm was a new hybrid with scented blooms (*Occidentalis* × *sinensis*). The flowers open a pale lemon and with age become white with a pale orange blotch on one petal. The plant is very free in blooming.

(3) The hybrid Freesias of Mr. C. G. VAN TUBERGEN, Jun., of Haarlem. L'Apogée, a large, somewhat pale, yellow variety; Contrast, a white kind with very conspicuous orange markings; Le Reve, deep mauve; Luminosa, clear, pale rose; Dainty, rose and white striped; and Robinetta, pink, were some of the best, but the whole collection was an object lesson in the improvement of the Freesia.

(4) The magnificent group staged by the FIRMA WEYELENBURG, Hazerswoude, in the apse on the left-hand side of the main hall. We noticed here *Rhodora canadensis*, Azalea Godogawa, A. pontica "Fanny," A. sinensis "J. C. van Tol," *Daphne Cneorum*, an excellent specimen; A. Maxwellii and *Rhododendron fastuosum* flore pleno.

(5) The Hyacinth exhibits of Messrs. ANT. ROOZEN & SON, Messrs. W. J. ELDERING & SON, Messrs. G. VAN DER MEIJ and Mr. J. C. GEHRELS.

(6) Sprays of forced shrubs shown by Messrs. D. J. TAS & SON.

(7) A group of *Syringa* exhibited by Mr. V. A. VREEKEN, of Aalsmeer.

(8) *Iris lazica* (from the Caucasus), a new Iris, something like *I. stylosa*, but hardy, and now flowering for the first time. *Anemone ranunculoides*: (1) var. pallida, with yellow flowers and dark foliage; (2) var. flore pleno. These were shown by Mr. VAN TUBERGEN.

(9) The Tulip exhibits of Messrs. M. VAN WAVEREN & SON.

(10) New or good Hyacinths noticed:—La Victoire, an early-flowering, bright rosy-crimson variety; Ivanhoe, a dark sport from King of the Blues; Myosotis, a lovely shade of pale blue; Louis Pasteur, pale purple with lighter centre; Orange Brilliant, orange-red, an improved Solfa-terre; Queen of the Pinks, a pink sport from Captain of the Blues; Marconi, pink striped; Princess Juliana, palest blush, very large "bells"; Excelsior, a magnificent variety of blush shade.

(11) New Tulips (*Single*): General de Wet, an orange sport from Prince of Austria; Rose Gris-de-lin superba, a deeply-coloured form of the ordinary Rose Gris-de-lin variety; Rose de Holland, white, with a pink edge; President Taft, a long white flower with rose-flushed edge; President Cleveland, a pale form of the last-named; Cullinan, a pale Flamingo; Princess Elizabeth, a deep rosy-pink Darwin kind with blush edge; Princess Amalia, another deep pink Darwin Tulip. (*Double*): Mr. Van der Hoef, pale double, yellow; Electra, bright crimson, shading to pink at the margins of the petals; Rosea perfecta, a double form of the old Cottage Maid; Couronne Royale, bright yellow.

(12) *Anemone pulsatilla rosea*, a pale, faded rose form of *A. pulsatilla*.

(13) The cut Box "Chantecler" yard in the outside grounds.

(14) Narcissus "Golden Giant," an immense yellow flower measuring 5½ inches across the perianth. It did not seem very free-blooming. Exhibited by Mr. M. WARNAAR, of Sassenheim.

(15) Lilac Gloire de Lorraine, fine large flowers and truss, pale purple in tone. Shown by Messrs. D. J. TAS & SON.

The dates of the remaining special shows are April 15 to 24, May 4 to 11, and May 20 to 22.

TRADE NOTICE.

MR. DIXON.

We are informed that Mr. H. Dixon, late with Messrs. Bull & Sons, Chelsea, has commenced business on his own account as a Plant and Bulb Merchant, Orchid Grower and Importer, at Spencer Park Nursery, Wandsworth Common, S.W.

LAW NOTES.

ALLEGED CORRUPT PRACTICES.

THE adjourned hearing, referred to on p. 176, of the case charging Herbert James Cutbush, of Messrs. W. Cutbush & Son, nurserymen, Highgate, with knowingly giving to John Brown, a gardener employed by Lord Cowley, of Cold Overton Hall, Oakham, Rutland, an account for goods supplied, amounting to £279 1s. 8d., which contained statements which were false and erroneous in material particulars, with intent to deceive Lord Cowley, came before Mr. Plowden at the Marylebone Police Court on March 17.

Mr. Bodkin, who prosecuted, said a difficulty had arisen which prevented the prosecution from proving the case, and he therefore asked to withdraw the summons. Mr. R. D. Muir, who defended, said the prosecution had received a letter from Lord Cowley, saying that the account was prepared in the form it was sent at Lord Cowley's expressed desire. Mr. Plowden said that so far as he could see there was no ground for the prosecution, and Lord Cowley's letter had cut the ground completely from under their (the prosecution's) feet. He allowed the case to be withdrawn.

In our report of the case (see p. 176) in which the defendant and his traveller, Richard Holden, were summoned for corruptly giving a gallon of whiskey to Charles Kidd, gardener to Captain Starkie, Huntroyde, Padiham, Lancashire, we stated that the prosecution could not produce the order for Cutbush's insecticide, which Morgan, the informant, says was received. This is incorrect. An agent's order form, sent by Holden to Messrs. Cutbush & Son, was duly produced by the prosecution, containing these words: "Please to have forwarded at once per passenger train to Mr. Kidd one case Cutbush's insecticide, £1 10s."

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending March 26, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was generally dry, but a good deal of cloud was experienced in Ireland, and the sky was sometimes cloudy or hazy over a considerable area in Great Britain.

The temperature was above the average except in England S.E., the excess amounting to about 4° in the north and east of Scotland. The highest of the maxima were recorded early in the week very generally, and ranged from 60° in Scotland E., England N.E., and Ireland S. to 55° in England S.E. and to 54° in the English Channel. The lowest of the minima, which occurred on somewhat irregular dates, varied from 21° in England S.W. and 25° in England E. and the Midland Counties to 30° in Scotland N. and to 31° in the English Channel. The lowest grass readings reported were 14° at Cambridge, 15° at Llangamarch Wells, 20° at Hereford and Kew, and 21° at Clacton-on-Sea and Tunbridge Wells.

The mean temperature of the sea differed little from that of the corresponding week of last year as a whole but was more than 8° higher on the south-east coast of England. The actual means for the period ranged from about 49° at Newquay and 48° at Plymouth to 44° at Margate and Lamlash, and to 41° at Burnmouth.

The rainfall was much less than the average. Over the greater part of England the weather was rainless, and in most parts of Ireland and Scotland less than a tenth of an inch was registered.

The bright sunshine was much less than the normal in Ireland and rather less in the north and west of Scotland and the north-east and north-west of England. Elsewhere there was a slight excess. The percentage of the possible duration ranged from 54 in the English Channel and 42 in England S.E. and S.W. to 24 in Scotland N., 18 in Ireland S., and 14 in Ireland N.

THE WEATHER IN WEST HERTS.

Week ending March 30.

No rain for eleven days.—The days have been as a rule rather warm, while the nights on the other hand proved with one exception cold. On the warmest day the temperature in the thermometer screen rose to 57°, and on the coldest night the exposed thermometer registered 11° of frost. The ground is at the present time at about a seasonable temperature, both at 1 and 2 feet deep. There has been no rain for 11 days. In order to show how persistent the rainfall has been for some months I may state that we have to go back to the beginning of August last to find a dry period lasting as long. No measurable percolation has come through either of the soil gauges since the first day of the past week. The sun shone on an average for 3½ hours a day, which is half-an-hour a day short of the average duration for this period in March. Two days were altogether sunless. Calms and light airs have alone prevailed, and the direction has been principally some point between north and east. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by 2 per cent. E. M., Berkhamsted, March 30, 1910.

MARKETS.

COVENT GARDEN, March 30.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia dealbata (mimosas), per doz. bunches...	8 0 10 0	Marguerites, p. dz. bunches white and yellow...	2 0 3 0
Anemones, p. doz.	1 0 1 6	Mignonette, per dozen bunches...	3 0 4 0
Azalea, Ghent, per bunch...	0 6 0 9	Narcissus poeticus (Pheasant's Eye), per doz. bunches...	1 6 2 6
— Fielder, p. dz.	2 0 3 0	— Soleil d'Or...	1 0 1 6
Bouvardia, p. doz.	4 0 6 0	Odonotoglossum, per dozen bunches...	1 0 2 0
Calla (see Richardia)		Pelargonium, shw., per doz. bunches...	4 0 6 0
Carnations, p. doz. blooms, best American (var.)...	2 0 3 0	— Zonal, double scarlet...	4 0 6 0
Carola, and other special varieties...	4 0 5 0	Richardia africana (Calla), p. doz.	1 6 2 6
— second size...	1 6 2 0	Roses, 12 blooms...	
— smallest, per doz. bunches...	12 0 18 0	— Niphetos...	1 0 2 0
Camellias, per doz.	1 6 2 0	— Lunasmaid...	2 0 3 0
Catleyas, per doz. blooms...	6 0 9 0	— C. Testout...	3 0 4 0
Dafoedils, best, per doz. bunches...	2 0 4 0	— Kaysen A...	
— seconds...	1 6 2 0	— Victoria...	1 0 3 0
— double, per doz. bunches...	1 6 2 0	— C. Mermet...	1 6 2 0
Eucharis grandiflora, per dozen blooms...	3 0 4 0	— Liberty...	1 6 3 0
Freesias, p. dz. bch.	1 0 1 6	— Mine Chateau...	2 0 5 0
Gardenias, per doz.	1 6 2 6	— Richmond...	2 0 4 0
Heather (white), per bunch...	1 0 —	— The Bride...	2 0 3 0
Lapageria alba, per dozen blooms...	1 6 2 0	Spiraea, per doz. bunches...	4 0 6 0
Lilac (French), p. bch.	3 0 4 0	— Stephanotis, 72 "pips"...	2 0 3 0
Lilium auratum, per bunch...	2 0 3 0	Stocks, per doz. bunches...	3 0 4 0
— longilorum...	2 0 4 0	— Sweet peas, per dozen bunches...	2 0 4 0
— lancifolium rubrum...	2 0 2 6	— Tuberoses, p. gross...	4 0 6 0
— lancifolium album...	1 6 2 0	— per doz. blooms...	0 4 0 6
Lily of the Valley, p. dz. bunches...	6 0 9 0	Tulips, singles, per doz. bunches...	6 0 9 0
— extra quality...	12 0 15 0	— doubles, per doz. bunches...	10 0 15 0
		Violets, p. dz. bch.	1 6 2 0
		— Parma...	1 6 2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches...	6 0 8 0	Ferns (French)...	0 6 0 9
Asparagus plumosus, long trails, per doz. bunches...	12 0 18 0	Galax leaves, per doz. bunches...	1 6 2 0
— medium, doz. bunches...	12 0 18 0	Hardy foliage (various), per dozen bunches...	3 0 9 0
— Sprenger...	0 9 1 6	Ivy leaves, bronze...	2 0 2 6
Berberis, per dozen bunches...	2 6 3 0	— long trails per bundle...	0 9 1 6
Croton leaves, per bunch...	9 0 12 0	— short green...	1 6 2 6
Cycas leaves, each bunch...	1 0 2 0	— per doz. bunches...	1 6 2 6
Ferns, per dozen bunches (English)...	2 0 3 0	Moss, per gross...	4 0 5 0
		Myrtle, doz. bch.	
		— (English)...	4 0 6 0
		— small-leaved...	1 0 1 6
		— French...	3 0 4 0
		— smilax, p. dz. trails...	3 0 4 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia Drummondii, per dozen...	24 0 30 0	Erica gracilis, doz.	10 0 15 0
Ampelopsis Veitchii, per dozen...	6 0 8 0	— hyemalis...	9 0 15 0
Aralia Sieboldii, p. doz.	5 0 8 0	— melanthera...	9 0 18 0
— larger specimens...	9 0 12 0	— persulata alba...	24 0 30 0
— Moseri...	6 0 8 0	— small plants (various)...	3 0 5 0
— larger plants...	12 0 18 0	Euonymus, per doz., in pots...	3 0 8 0
Araucaria excelsa, per dozen...	12 0 80 0	— from the ground...	3 0 6 0
— large plants, each...	3 6 5 0	Ferns, in thumb, per 100...	8 0 12 0
Aspidistras, p. dz., green...	15 0 24 0	— in small and large pots...	12 0 20 0
— variegated...	30 0 42 0	— in 48's, p. dz.	4 0 6 0
Asparagus plumosus nanus, per dozen...	9 0 15 0	— choicer sorts...	8 0 12 0
— Sprenger...	9 0 12 0	— in 32's, per dz.	10 0 18 0
— tenuissimus...	9 0 12 0	Ficus elastica, per dozen...	9 0 12 0
Azaleas, per doz.	30 0 42 0	— repens, per doz.	6 0 8 0
Begonia Gloire de Lorraine, p. doz.	12 0 18 0	Gemistas, per doz.	6 0 9 0
Boronia heterophylla, p. dz.	24 0 30 0	Greivilleas, per dz.	4 0 6 0
— megastigma...	18 0 24 0	Hyacinths, per dz. pots, 3 in a pot...	6 0 9 0
Cinerarias, per doz.	5 0 8 0	Isolepis, per dozen...	4 0 6 0
Clematis, per doz.	8 0 9 0	Kentia Belmoreana, per dozen...	18 0 24 0
Cocos Weddelliana, per dozen...	18 0 30 0	— Fosteriana, per dozen...	18 0 30 0
Crotons, per dozen...	18 0 30 0	Latania borbonica, per dozen...	15 0 21 0
Cyclamen, per doz.	8 0 12 0	Lilium longiflorum, per dz.	24 0 36 0
Cyperus alternifolius, dozen...	4 0 5 0	— lancifolium, p. doz.	18 0 30 0
— laxus, per doz.	4 0 5 0	Lily of the Valley, per dozen...	18 0 30 0
Daffodils, per doz.	4 0 6 0	Marguerites, white, per dozen...	6 0 9 0
Dracanas, per doz.	9 0 24 0	Mignonette, per dozen...	6 0 8 0
		Selaginella, p. dz.	4 0 6 0

Plants in Pots, &c.: Average Wholesale Prices (Cont'd.)	s.d. s.d.	Tulips in boxes of 24 bulbs...	s.d. s.d.
Spiraea japonica, dz.	9 0 12 0	— pots, special...	9 0 12 0
Stocks (Intermediate), per dz.	9 0 12 0		

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples Newtown (U.S.), per barrel...	21 0 27 0	Mangoes (Cape), per dz.	4 0 10 0
— (Nova Scotian), per barrel...	16 0 18 0	Nectarines (Cape), per box (24 to 28 fruits)...	5 0 10 0
— Baldwin...	14 0 17 0	Nuts, Almonds, p. bag...	36 0 42 0
— Greening...	14 0 18 0	— Brazils, new, per cwt.	45 0 45 0
— Russett...	17 0 20 0	— Barcelona, per bag...	32 0 34 0
— Failawater...	18 0 20 0	— Cob, per lb.	0 3 0 3
— Ben Davies...	16 0 18 0	— Cocoa nuts, 100 lb.	10 0 14 0
— (English), per bushel...		— (Italian), p. bag...	11 0 13 0
— Annie Elizabeth...	5 6 6 6	Oranges—	
— Newton Wonder...	5 0 7 0	— Palermo Blood (40)...	7 6 8 6
— Bramley's Seedling...	5 6 7 6	— (100)...	8 0 9 6
— Newtown Pippin, per case...	7 0 8 0	— Californian Navel, box (96)...	10 0 11 0
— Oregon...	11 6 14 0	— (112)...	11 0 12 0
— French Russets...	8 0 10 0	— Jaffas, per box...	8 0 10 0
— British Columbia...	12 0 18 0	— Denia, per case (420)...	12 0 22 0
Bananas, bunch:		— Valencia, per case (420)...	11 0 20 0
— Doubles...	10 0 —	— Messina Bitters, per box...	10 6 11 0
— No. 1...	8 0 10 0	— Mandarin, Florida, p. case...	10 0 12 0
— Extra...	8 0 10 0	— per box...	1 4 1 6
— Giant...	9 0 11 0	— Jamaica, p. case...	9 6 10 6
— Red coloured...	4 6 6 0	— Tangerine, per box...	0 6 0 9
— Red Doubles...	8 0 9 0	— Seville Sour, per ½ chest...	15 0 16 0
— Jamaica...	5 0 5 6	Peaches (Cape), per box (12)...	8 0 12 0
— 100's, per dz.	0 6 1 0	— Pears (Avacado), per doz.	6 0 12 0
Cranberries, p. case...	6 6 7 6	— (Cape), per box (24, 28, 32, Williams' Bon' Chretien)...	2 6 4 0
Custard Apples, p. dozen...	6 0 12 0	— (Australian), p. tray...	4 0 5 0
Grape Fruit, case 10 0 14 0		Pineapples, each...	3 0 5 0
Grapes, per lb.:		Plums, (Cape), per box (15 to 28 fruits), Wickson...	4 0 6 0
— (Cape) black, per case, large...	10 0 —	— (Cape), Apple per box...	9 0 14 0
— "small...	5 0 6 0	— Satsuma...	5 0 7 0
— Gros Colmar, A quality...	2 0 3 0	— Chalcot, p. box...	3 0 4 0
— B quality...	1 0 1 9	— Strawberries, p. lb.	3 0 4 0
— Alicante, A quality...	1 6 2 6	— seconds...	1 0 2 0
— B quality...	1 3 1 9		
— Gros Colmar (Belgian)...	1 3 2 0		
— (Almetia), per barrel...	14 0 20 0		
— p. 12 lb. baskets...	5 0 8 0		
Lemons, box:			
— Palermo, 300...	6 0 9 0		
— 360...	7 6 9 0		
— selected, case...	11 0 13 0		
Limes, per case...	2 6 3 0		
Lychées, per box...	1 6 1 9		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen...	2 0 2 6	Mustard and Cress, per dozen pun.	1 0 —
— Jerusalem, ½ sieve...	0 9 1 0	Onions (Dutch), p. bag...	3 0 3 6
Asparagus, Paris Green, bundle...	4 0 5 0	— (English), bag...	4 0 4 6
— Sprue, bundle...	0 9 10 0	— pickling, p. lb.	7 0 8 0
— Lawies, bundle...	4 0 5 6	— Spring, per dz. bunches...	3 0 4 0
Beans (English and Chan. Islands), per lb.	0 10 1 0	— (Valencia), per case...	8 0 9 0
— Broad (French), per pad...	4 0 5 0	Parsley, ½ sieve...	1 6 3 6
— (Madeira), per basket (6 to 8 lbs.)...	2 6 3 6	Parsnips, per bag...	1 6 2 0
Beetroot, per bushel...	1 6 2 0	Peas (French), pad...	3 0 5 0
Cabbages, p. tally...	2 6 —	Potatoes (Algerian), cwt.	12 6 13 0
Cardoons (French), per dozen...	8 0 10 0	— (Channel Islands), per lb.	0 3 0 4
Carrots (English), dozen bunches...	2 9 3 0	— (Teneriffe), per cwt.	10 0 15 0
— per bag...	3 6 4 0	Rhubarb (forced), doz. bundles...	0 5 0 7
— unwashed...	1 6 1 9	— Natural, per tally...	5 6 6 6
Cauliflowers, tally...	6 0 8 0	Radishes (Guernsey), per dozen...	0 8 0 9
— (French), per crate (24-30)...	3 6 4 6	Savoy, per tally...	4 0 7 0
Celery, per doz.	1 6 2 6	Seakale, per dozen punnets...	10 0 12 0
Chicory, per lb.	0 2 0 3	Spinach, ½ sieve...	2 6 3 0
Cucumbers, per dz.	3 0 4 0	— (French), crate...	2 6 3 6
Endive, per dozen...	2 0 2 3	Sprouts, ½ sieve...	1 0 1 3
Horseradish, foreign, new, per bundle...	1 0 1 3	— per bag, 28 lbs.	1 3 2 6
— 12 bundles...	12 0 15 0	Sprouting Broccoli, bag...	1 3 1 9
Lettuce (French), per dozen...	1 0 1 3	Stachys tuberosa, per lb.	0 4 0 5
— (Ces), per doz.	3 6 5 6	Tomatoes...	
Marrows (Madeira), per doz.	12 0 18 0	— (Teneriffe), per bundle...	7 0 12 0
Mint, doz. bunches...	3 0 4 0	Turnips, 12 bchs...	2 0 3 0
Mushrooms, per lb.	8 0 9 0	— bags...	2 0 2 6
— broilers...	0 6 —	— dirty, per bag...	1 6 2 0
		Turnip Tops, bag...	1 0 2 0
		Watercress, p. flat...	4 0 6 6

REMARKS.—Best quality Canary Tomatoes are firmer in price, but there are plenty of inferior fruits. Ripe Canary Bananas of good colour and quality are scarce; most of the bunches now arriving are frozen. The Grape trade generally is quiet. The supplies of Canadian and American Apples are getting shorter, and quantities are arriving in a damaged condition; consequently, sound parcels are realising high prices. Oranges are selling very slowly; there are plenty in the market. Navel and Jaffa Oranges in good condition may be bought cheaply. The Lemon trade is very quiet. Business in vegetables and fruit is quiet. F. H. Fisher, Covent Garden, March 30, 1910.

Potatos.			
	per cwt.		per cwt.
	s.d. s.d.		s.d. s.d.
Bedfords—	3 0-3 6	Lincolns—	3 3-4 0
Up-to-Date ...	2 3-2 9	Up-to-Date ...	3 3-4 0
Blacklands ...	2 3-2 9	Dalmeny Beauty ...	3 6-3 9
Dunbars ...	5 3-5 6	Royal Kidney ...	2 6-2 9
Maincrop ...	4 3-4 6	Maincrop ...	3 3-3 9
Up-to-Date ...	2 3-2 9	King Edwards ...	3 3-3 9
Lincolns—	3 0-3 3	Blacklands ...	2 9-3 0
Evergood ...	3 0-3 3	Kents—	
Sharpe's Express ...	3 0-3 3	Scottish Triumphs ...	3 6-4 0
		Up-to-Date ...	3 6-4 0

Edward J. Newborn, Covent Garden and St. Pancras,
March 30, 1910.

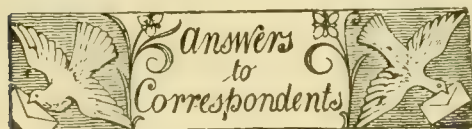
COVENT GARDEN FLOWER MARKET.

From the first of April to the end of July the market is open for the sale of plants each morning. During the other months of the year plants are not sold on Mondays, Wednesdays, and Fridays, the market being then only open for the sale of cut flowers. Though there are often many plants left over from the previous day, and many which arrive with the cut flowers, the rule is strictly enforced, except in the case of forced bulbs. A year or two ago, the time for opening the markets for the sale of plants and flowers was altered to 5 a.m. for April, which hour is quite early enough. Under modern conditions it would be better for many buyers if it were opened later, and kept open late enough for them to execute their orders received by post. In order to supply this late demand, many salesmen have stores outside the proper flower market. These stores are on the increase, and it is possible to procure from them up to mid-day almost anything seasonable at ordinary market prices. They also do a very large business in country consignments and orders which often do not arrive before the market closes at 9 a.m. I noticed the other day that one salesman had a large number of "expressed letters." There has been some discussion on this subject, as the outside stores have been established to the detriment of the holders of stands in the market who are unable to take outside accommodation.

With a continuance of fine weather there will soon be a busy trade in summer bedding plants, and already some growers have made a start. Buyers who are enabled to get the plants a little protection will be able to get them on better terms than they will later on. If some glass were available it would pay to buy the store boxes of plants and grow the various subjects on in pots. Last week I noted quite a number of subjects which could be treated in this manner. Pansies have opened their flowers well, and this, with the fine weather, has caused a large trade to be done. Primroses, Polyanthus and Daisies are also in flower. All hardy, herbaceous plants that are usually in demand are procurable. There is not much that is new to record in the trade in flowering plants. Supplies of all seasonable subjects are abundant, and it may be said unseasonable also, for through the retarding system many flowering plants may be had in bloom all through the year. Taking such plants as Lily of the Valley, Liliums and Spiraes, those from retarded roots are the best at the present time. There are some flowers which still retain their proper season, for example, Cinerarias; these, though their season may be extended, refuse to flower all the year round, and Poinsettias have never been induced to flower in summer; the earliest I have known them in bloom is the first week in November, and the latest I have seen were observed in February.

CUT FLOWERS.

Though there was a good general Easter trade no excessive prices were made, supplies being abundant. Daffodils and Tulips have been the prevailing features. Callas and Liliums were well supplied, and the florists had no difficulty in obtaining other subjects. A. H., Covent Garden March 30, 1910.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

ABNORMAL PEACH FLOWER: E. R. The sepals have developed into leaves, presenting a good example of a foliaceous calyx. The abnormality is not uncommon in flowers.

AMERICAN GARDENING PAPERS: D. & Van der L., Veendam. *The Florists' Review*, published every Thursday by The Florists' Publishing Co., 550-560, Caxton Building, 334, Dearborn Street, Chicago; *Horticulture*, published every Saturday, at 11, Hamilton Place, Boston, Mass.; *The American Florist*, published every Saturday by American Florist Co., 324, Dearborn Street, Chicago; and *The Florists' Exchange*, published every Saturday by the A. T. De La Mare Printing and Publishing Co., Ltd., 2, 4, 6, and 8, Duane Street, New York. These are amongst the more important papers published in the gardening and nursery trade interests in the United States.

ASPIDISTRA LEAF: A. P. The leaf appears to have been eaten by something or other, but we cannot say whether by a slug or cockroach. Examine the plants at night after the lights are turned out. Perhaps if you sponge the leaves with quassia extract, this liquid will make them distasteful to the nocturnal visitors.

CARNATIONS FOR MARKET: G. J. T. It would not be possible to flower Carnations in the open in January if covered by bell-glasses as you suggest, though such covering may induce an earlier flowering than usual were you to employ the sections known as "Marguerite" and "Riviera Market." For the border types and those known as "American Perpetual" Carnations the cloches would be quite useless. In short, we cannot advise you to undertake the work at all in this country and in the form you suggest. A better crop, and one likely to prove to some extent remunerative, provided labour is abundant and cheap in your district, would be the single Violet La France. Any profitable result, however, would naturally depend upon the early flowering of the crop and the quantity available. Winter-flowering Carnations bloom freely enough in January, but the plants are cultivated in houses or frames.

GARDENIA FLOWERS: G. W. B. There is no disease present; the browning has been caused, probably, by an excess of moisture in the atmosphere and keeping the house too close. Ventilate as opportunity affords, and use less water.

NAMES OF FRUITS: P. R. M., Penrose. The Apple is Pile's Russet.

NAMES OF PLANTS: W. H. W. Cornus mas.—G. W. The specimens are so inadequate and shrivelled that we give the names with reserve; 1, *Kleinia articulata*; 2, *Ophiopogon Jaburan*; 3, not recognised; 4, *Cyrtomium falcatum*; 5, probably a portion of a *Kentia* leaf; 6, *Nephrolepis cordata*; 7, a young frond of *Cyrtomium caryotideum*; 8, *Doronicum* sp.; 9, *Lithospermum prostratum*.—R. J. P. *Sophronis grandiflora*.—T. N. All three specimens are varieties of *Picea excelsa* (not *Abies*); 1, *Clanbrassiliana*; 2, *pygmaea*; 3, *tenuifolia*.—W. J. C. *Rhododendron praecox*.—T. W. C. *Lamium maculatum* var. *aureum*.—O. R. 1, *Pleurothallis obovata*; 2, *Oncidium pubes*, not *Brunleesianum*; 3, *Aerides odoratum*; 4, *Odonoglossum blandum*; 5, *Hartwegia purpurea*; 6, *Brassia verrucosa*; 7, *Oncidium flexuosum*.—F. M. 1, *Pteris longifolia*; 2, *P. tremula*; 3, *Asplenium trichomanes*; 4, *Cystopteris bulbifera*.—D. *Epidendrum bifidum*.—W. P. C. 1, *Erythronium dens-canis* (Dog's tooth Violet); 2, *Omphalodes verna*.—A. S. 1, *Cypripedium Argus*; 2, *C. venustum*; 3, *Cirrihopetalum O'Brienianum*; 4, *Chlorophytum elatum variegatum*.—F. D., *Malvern*, 1, *Anemone palmata*; 2, *A. pulsatilla*; 3, *Omphalodes verna*; 4, not recognised; 5, *Cupressus Lawsoniana*; 6, *Thuyopsis dolabrata* var. *variegata*.

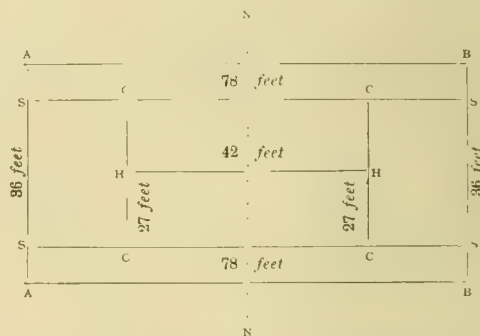
NEWLY-PLANTED FRUIT TREES: L. J. We think you may safely plant Lucerne in the orchard provided you keep a clear, circular space, 3 feet in diameter, around each tree. The results will be disastrous if the crop is allowed to approach to the tree stems.

PEACH TREE: M. A. P. The trouble has been caused by aphides, which have deposited "honey-dew" on the branches. On this substance a fungus (*Fumago varians*) has developed. It is not a parasitic disease, and will cause no harm to the trees. Fumigate the house to destroy the green fly, and then cleanse the branches with soft soap in warm water.

R.H.S. CERTIFICATE: Correspondent. The Royal Horticultural Society hold each year an examination for schoolmasters who wish to prove their fitness for teaching elementary school gardening. You also ask what is required in order to become a Fellow of the R.H.S. This is quite a different matter. Anyone can be elected a Fellow of the R.H.S. on payment of one guinea a year and one guinea entrance fee. Professional gardeners are not asked to pay the entrance fee. Write to the Secretary of the R.H.S., Vincent Square, Westminster, S.W.

TENNIS COURT: J. C. The following diagram will illustrate the amount of ground required, and the lines that are usually made and kept. The lines A B and B A indicate a double court for three or four players; S S, S S, a single court for two players; A A and B B are the base lines; C C and C C, service lines; H H, half-court line; N N, net. A court for the

single game is 27 feet wide and 78 feet long; and for the double game, 78 feet long and 36 feet wide. The posts for supporting the net should be placed 3 feet beyond the sides. The service lines run parallel to the net, and are 21 feet distant from the same. The net should be 3 feet high in the centre, and 3 feet 6 inches at the posts, which are put 2 feet or 3 feet outside the line, to allow of the net



dropping. When the outside measurements have been taken, and a line drawn straightly and tightly, it may be marked with the machine made for the purpose, or by the use of a whitewash brush and a solution of whitening, lime and water. The machine is better, because by its use it is easier to obtain perfectly straight and thin lines. These particulars are taken from the *Calendar of Garden Operations*, of which a new edition will shortly be issued from the offices of this journal, price 7jd. free by post.

VALUE OF HOUSE AND LAND: S. A. P. It is not possible to form a correct estimate of the value of house and land property when information regarding situation of house, depth, quantity, and aspect of land is withheld. Moreover, you do not say whether you contemplate buying or leasing the property you refer to in your note. We will assume the latter to be your intention. The value of the 2½ acres of Strawberry plants (say, 17,425 plants), in full bearing, should, if the ground is good and has been liberally dressed with farmyard manure, yield an average crop of 3 lb. of ripe fruit per plant—3,068 lbs. (about 5 tons 16½ cwt. weight of fruit). Thus, at 2d. per lb., the crop would amount to £108 8s. (gross). The cost of gathering the fruit for market would be one halfpenny to three farthings per lb., according to the weight of the crop—£27 4s. 6d. at the former price, and £45 16s. 9d. at the latter scale. Adding to this amount about £12 salesman's commission, market expenses, and freight of goods by rail, it would reduce the total to £50 11s. 3d. The question now is, how much of this amount the landlord should receive as rent for the 2½ acres of Strawberry plants in full bearing. We think £10 would be a fair allowance for the second and third year of the plants fruiting. After the third year of fruiting the plants should be ploughed into the ground, when the necessary number of the strongest-rooted runners for making fresh plantations have been taken. After the third crop of fruit has been gathered, only the ordinary rent per acre as charged for uncropped land in the neighbourhood should be paid. You do not give any particulars of the mixed fruit trees growing in the one-acre orchard. If the trees (about 108 in number) are fairly established, and they consist of good market varieties, in a clean and vigorous condition, £7 would be a fair rent to pay for the orchard, and 6s. per week would be a fair rent for the eight-roomed house attached thereto, providing a good supply of water is available for domestic purposes. The rent of cottage may be 2s. 6d. per week, and the 3 acres of adjoining land (after the third crop of Strawberries has been taken) £1 per acre, or whatever money value land is let at in the district. We are assuming the house and cottage are in good condition.

Communications Received.—W. T., Jamaica—W. C.—W. W. P.—Redhill Gardeners' Assoc.—Bristol Gardeners' Assoc.—R. R.—Lacy—H. & Co., Ltd.—F. D., France—F. Scrivens—B. D. K.—Leafless—A. D.—H. S. T.—E. H. J.—R. P. B.—J. G.—J. D.—W. D.—J. D. G.—F. F.—A. B., La Mortola W.—A. G. D.—G. W.—W. B. H.—B. G.—Rev. J.—C. & S.—J. H. E.



THE Gardeners' Chronicle

No. 1,215.—SATURDAY, April 9, 1910.

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DOVER HOUSE.

(See figs. 98, 99 and 100, and Supplementary Illustration.)

THE residence of Mr. Pierpont Morgan at Dover House, Roehampton, is one of the show places in the immediate vicinity of London. Situated only about 7 miles from Charing Cross, the gardens are distinctly suburban, yet so admirably are they maintained that it is difficult to believe that London lies so near. The estate consists of about 170 acres, of which the pleasure grounds and gardens occupy 18 acres, including the fruit and vegetable quarters, which amount to 6½ acres. The upper picture in the supplementary illustration shows the south front of the house and part of the formal flower garden, which at present remains just as it was designed in 1863 for one of the Earls of Clifden. In the circular bed may be seen the stem of a somewhat decrepit specimen of *Araucaria imbricata*, for which a sentimental regard is entertained, but which cannot be expected to live much longer in its present unsuitable conditions. In the meantime a kindly care is expended in draping the exposed trunk with ornamental vines and similar plants. At the present time this flower garden is brilliant with flowering bulbs, Wallflowers and other spring-blooming plants; but in summer the

beds are planted in the manner shown in the illustration, although the details are varied from year to year for the sake of variety. At every season, excepting the dullest winter months, a display of flowers of one kind or another is maintained. The lower picture in the supplementary illustration shows a portion of the pleasure ground, situated immediately in front of the house, on the same side as the flower garden, and divided from the Roehampton Road by an Oak and brick fence. It is surprising, considering the narrow strip of ground on the right-hand side of the path, how well careful planting has screened the fence and concealed the boundary. The limited extent of the pleasure grounds is compensated by the choiceness of the plants which they contain. In recent years many old shrubberies have been removed, and beds of a size appropriate to the

tance as bright as a floral group, and it is certainly one of the most effective arrangements of Ivy that have come before our notice.

The subsoil of the estate being pure gravel, it was necessary in this, and all such cases, to remove the staple soil, and substitute for it a compost suitable for the particular plants which are used. On every hand instances of similar careful planting abound. Large beds here and there contain some of the choicest and most effective *Rhododendrons*, each variety grouped separately. Pink Pearl is represented by a large group, in which some of the earliest plants distributed are now acquiring a considerable size, another group contains about 100 plants of *Doncaster*, which is one of the most effective scarlet *Rhododendrons*, but whose habit would be better if it were less dwarf. A third bed contains the



FIG. 98.—ROSES AT DOVER HOUSE GARDENS.

grounds have been formed for the purpose of massing in them the best flowering shrubs, and shrubs with variegated, or brilliantly-coloured foliage. The bed shown in the lower picture illustrates particularly well how carefully the planting is carried out, each specimen, having proper room for development, can be seen perfectly in all its outlines.

In this portion, and just in full view of the house windows, a bed has been planted recently with specimen Ivies. The tallest plants are grouped in the centre, and the dwarfest at the edges in order that the bed shall present a good effect when viewed from any side. The idea has been to provide a bright effect in winter, therefore, the most variegated sorts have been favoured, and the Nurseries have been ransacked, in order to get the best. As we looked upon the effect a few weeks ago, it appeared at a short dis-

variety John Walter, whilst Lord Palmerston, a rosy-crimson variety with a large yellow blotch, gives a good account of itself in other beds, in close proximity to beds of *Rhododendron molle* (*Azalea mollis*) var. *Anthony Koster*. Interspersed with these floral beds are others of similar size, planted with *Holly*, large specimens of Japanese Maples, and other species. Here and there the path is spanned by an arch covered with *Vitis Coignetiae* and other species, as shown in the illustration, and with varieties of climbing *Roses*.

In fig. 98 a view is given of one portion of the rosary. In making the Rose garden the soil was excavated to a depth of 3 feet, and the beds filled with Banstead loam over 6 inches of clay. By this means the *Roses* are made to thrive in a garden where *Roses* could scarcely be expected to succeed under natural

conditions. In the same illustration *Violas* may be seen in full flower, for they are used as a groundwork. *Violas* furnish another instance of plants which are peculiarly unsuitable for such southern gardens as have a staple like that at Dover House, but which, when provided with a suitable soil may be made to flourish. The head gardener, Mr. J. F. McLeod, devotes considerable attention to *Violas*, which he propagates year by year by cuttings inserted out-of-doors in September; they receive no protection during winter beyond that afforded by a hedge. Hand-lights, so frequently used for *Viola* propagation in other districts, have been found unnecessary

mens in the country, but it is interesting to note that a very similar tree thrives in the garden at Broome House, Fulham, the residence of Miss Sullivan. Another interesting tree (see fig. 100) at Dover House is a good specimen of the Judas tree (*Cercis Siliquastrum*), which blooms freely every season.

In the glass houses a first-rate representation is maintained of the choicest, tender, flowering and foliage plants; indoor fruit culture includes vine, Peach, Melon, Fig cultivation, and the forcing of Strawberries. All the fruit trees flourish and bear crops quite as well as if they were growing in a place 100 miles from London. One Peach house is fur-

THE ROSARY.

CULTURAL HINTS FOR APRIL.

Much of the pruning, except in the case of the tender sorts, such as those of the Tea and Noisette sections, will be nearly finished, and the tender ones can be dealt with during the present month. Where any plant has been severely damaged by the frost, cut the shoots well back to a prominent bud on sound wood: the most severely pruned Roses often produce the best blooms for exhibition purposes. All protecting material, including soil that has been heaped about the stems, should now be removed. The wisdom of thinning out useless spray and weakly growths during the past summer will



FIG. 99.—VIEW IN THE KITCHEN GARDEN AT DOVER HOUSE.

[Photograph by W. J. Vasey.]

here, and, as a rule, not more than 5 per cent. of the cuttings fail to strike.

In fig. 99 is illustrated a small portion of the kitchen garden, and the path leading from it towards the front of the house and pleasure ground. It will be seen that the vegetable quarters are in most cases bordered with flowering plants, so that this kitchen garden is made to present a decorative and smart appearance. Cordon Pear and Apple trees may be seen growing on the freshly whitewashed walls, and Rose arches relieve the general effect, whilst behind the wall is the great specimen of purple Beech, which stands close to the front of the residence. This Beech is one of the finest speci-

nished entirely with a single tree, which is now in the very best of health, and measures 18 feet by 30 feet. It bears an enormous crop of first-rate fruits each year. On previous occasions we have referred to the new Palm house, and the new Orchid houses and Corridor, and in the issue for November 6 last, illustrations were given of the model fruit room, which was rendered necessary by the greatly increased yield from the out-door fruit trees which have been planted during the past 20 years. We may, therefore, reserve any further notes of this interesting place for a subsequent issue, when we hope to have something to say of the head gardener.

now be apparent in the firm, well-ripened wood which, up to the present, has not been damaged by frost. The pruning of the Tea-scented, Hybrid Tea and Noisette varieties may be begun. Cut out all immature wood; shorten the strongest growths a few inches, and the weaker ones to quite a third of their length—in many cases to three or four buds. All suckers should be cut away at the time of pruning. The latest planted bushes should be pruned last.

Insect pests will soon become troublesome on Roses cut-of doors, and they must be summarily combated by a warm infusion of tobacco, soft soap and quassia extract. Use the specific in mild weather at nightfall, and wash it off well with clear water the following morning.

All surface mulchings, especially over plants

raised from cuttings, should be made good for the season: the litter, if objected to as unsightly, may be covered with a thin layer of soil. Stake and tie securely all standards and climbers. Spare beds may be made very effective with a raised centre of wood trellis or wirework covered with good varieties of Wichuraiana Roses, such as Delight, Hiawatha, Minnehaha, and Jersey Beauty, all of which are distinct. A pleasing effect is also to be had with a bed of *Rosa rugosa*, *Blanche de Coubert*, the creamy-white, semi-double flowers of which are very striking, as also later on are the scarlet hips. Most of the kinds I have mentioned may be procured as established pot plants from the nurserymen, and, indeed, for late planting, this is the only course to adopt. The seedling Briars will soon be coming through the ground. If the soil is dry, thoroughly soak the rows with water, to enable the seedlings to break through the seed-bed. Should fresh Roses be required for forcing in the autumn, it is not too late to put up some maiden plants in 6-inch pots in a mixture of two-thirds good, turfy loam, and the remainder,

milder weather prevails. Cut out all weakly shoots that are not likely to flower, and, if mildew appears, syringe the plants with soft soap thoroughly dissolved in hot water at a temperature of 90° to 95°. Spray well under and over the foliage. The early forced plants of Hybrid Perpetual Roses and the later ones also, when flowering is done, should be taken into cooler quarters, and, when gradually hardened off, plunged outside for further use next season. Those of the Tea-scented section, if kept rather dry at the roots and top-dressed later on with turfy loam and bone-dust, will come in later, and be useful for autumn flowering.

The repotting of autumn and spring grafted Roses should soon be completed; the first batch should now be strong and vigorous, and will be ready next month for plunging outside for the season. A goodly number of the cuttings in the hot-beds will now be rooted, and, as they become ready, should be repotted into 4-inch and 4½-inch pots and placed in a fresh hot-bed, prepared in advance. The plants will require careful watering; a light syringing overhead is

lime on the surface will tend to counteract any sourness or acidity in the soil, and liberate the plant-food. Maintain a moist atmosphere, ply the syringe well amongst the foliage, and give an abundance of fresh air whenever the weather permits. A little fire-heat during damp weather will dry up excess of moisture, but, after the buds and flowers are cut, artificial warmth may be dispensed with altogether. *J. D. Godwin.*

COMPARATIVE STAGES OF VEGETATION.

FROM records of stages of vegetation kept for 17 years previous to the current year, some interesting comparisons with those of this season may be made. For the first seven years the records were made in a suburb of London, where vegetation is about as forward as it is where I have since been living, about 50 miles further to the south, and near to the coast.

This year the Snowdrop was in full blossom on February 16. It has been as early, or a day or two earlier, on several occasions. The Yellow Crocus, on the contrary, has never been in full bloom earlier than it was this season, namely, February 20. A bunch of Double Yellow Daffodils was gathered on March 7. In the same place, a bunch was picked on February 28, 1903, but not so early in any other year. No Wallflowers were in bloom on March 31, though the buds were showing. They have been as forward on February 16, and in 1903 they were half out at the end of March. The comparison, however, is not of much significance, because much depends upon the condition of the seedlings when planted out, and on the time of planting. The Almond was not at all early this season, not being in bloom before March 31, whereas it was fully out on the first day of that month in the early season of 1903, and in several other years it has been in full blossom in the middle of March.

Turning to shrubs and certain trees, the Elder was a quarter in leaf on March 1. It was as far advanced on January 31, 1898, the earliest season for starting vegetation of which I have any record. But, in that year, a prolonged check followed the premature development, so that many subjects of observation were but little, if any, more forward at the end of March than they had been on January 31. In 1903 the Elder was half in leaf on March 1, but in other years it was not more forward than this season. Other premature developments in 1898 were those of the Willow, which was in the pretty stage of feathery greenness, seen when the buds are bursting all along the slender shoots, on February 20; and the Hawthorn, which was a quarter in leaf on the same date. Neither was appreciably more advanced at the end of March. This year the Willow was less forward on March 31, while the Hawthorn, in sheltered situations, was a quarter in leaf, being as early as in any year of observation other than 1898. Lilac leaf was less than a quarter out this year at the end of March, whereas it has been as far advanced by the beginning of that month, and in 1898 the buds were bursting on January 31. A similar comparison holds good for the leafing of the Wild Honeysuckle and the Blackberry. The flowering Currant was in full beauty on March 31. It has never been more than a few days earlier in the years of observation, but has been as forward in about half of them. Horse Chestnut buds were well burst at the end of last month, as is usual in the majority of seasons. Very seldom have they been earlier in bursting. The Hazel is not forward, no approach to the bursting of buds being noticeable at the end of March, whereas that state was reached in 1903 and 1905 at the date named. The middle of April, however, has been a more common date.

More practical importance attaches to observation on fruit bushes and trees. Gooseberries have often been earlier in leafing and in showing blossom buds than they were this season. The leaf-buds were beginning to burst on March 1, and blossom-buds were showing to a great extent on the 31st. In 1894 the bushes were nearly half in leaf on



FIG. 100.—*CERCIS SILIQUASTRUM* IN DOVER HOUSE GARDENS.

sharp sand and well-decayed manure. In potting, make the soil quite firm. Plants with three or four well-ripened shoots should be selected, and, if kept plunged outside all the season, they will be ready for gentle forcing in November. The old plants that have been forced for some years may be gradually dispensed with, for, after being forced for some years, they become exhausted, and the quality of the flowers deteriorates.

The final batch of pot Roses may now be brought into the house and lightly pruned. Except for an occasional use of the hot water system during dull weather and cold nights, fire-heat may be dispensed with entirely towards the end of April. Keep the plants free from insect pests by fumigation or vaporising; allow them plenty of sunlight and fresh air, with the necessary moisture, using weak liquid manure on alternate waterings. The weather during April is very changeable, cold rains and winds alternating with hot sunshine, and ventilation will need great care. Fresh air should be admitted at the bottom of the house, so as not to come directly on the plants, and very little, if any, should be allowed to enter by the top ventilators until

all the moisture they require for the first few days, and they should be kept shaded from direct sunlight. Keep the frames covered at night-time to maintain the requisite heat. If the old hot-bed is made up with fresh linings it will be useful for accommodating the newly-potted cuttings, which must be kept close and shaded for a time, but afterwards they may receive a little air admitted at the back. Use tepid water to the roots as required. The amount of water to be given to Roses planted out under glass depends largely on the nature and construction of the border and whether the soil is light or tenacious in character. If in any doubt, make a hole a foot or so down, and, if the soil therein is very dry, give a thorough soaking of water. Soil, to be well aerated and sweet, must be efficiently drained, and should have mixed with it plenty of lime siftings. Good, strong, yellow loam, some well-fermented manure, and several thin layers of ½-inch bones form a suitable staple manure, and will provide all that will be required for some time to come. An occasional top-dressing or a little fertiliser will assist the plants after they are well established, whilst two or three light sprinklings of

February 8, and in 1886 they were in the same stage on March 16. The leaf was a quarter out on February 20, 1898, and the blossom was full at the end of March, 1905. Black Currants were a quarter in leaf at the end of last month, but not showing any blossom-buds. In 1902 and 1905 they were in half-leafage on the corresponding dates, but were not as early in any other year of observation. The same comparison applies to Red Currants, except that they were a day or two behind Blacks in showing leaf this year, though they showed some blossom-buds on April 2, while Blacks showed none. Nectarines on a wall in the open were in full bloom at the end of last month, a stage reached 11 days earlier in 1894, and 10 days earlier in 1896. In no other year of observation were they more forward than in the present year. No Peaches other than a few standards are grown by me in the open, and they are later than they would be if on walls, only a few blossoms being open when Nectarines were in full bloom on a wall. The fruit-buds of early Pears were burst on March 25, showing clusters of blossom-buds beginning to emerge from their sheaths. In 1893 the like stage was reached on March 11, and in 1896, 1897 and 1898 on the 20th or 21st of the month. In 1899 a few buds had burst on February 20, and in 1903 the trees were in full blossom on March 31. These comparisons show that Pears, although dangerously advanced, are less so than they have been on several occasions.

The buds of Monarch, Czar, and Black Diamond Plums were on the point of bursting on March 31. They had been nearly as forward for a few days, but had been checked by north-east wind and slight frosts at night. In 1903 Monarchs were in full blossom on March 25, and at the end of the month in 1905 they were nearly as advanced, but not in any other year of observation. Plums and Cherries are dangerously forward, the fruit buds of both having been on the point of bursting at the end of March. Only in 1903 have I any record of equal precocity. Raspberry leaf was a quarter out at the same date. It was a little earlier in 1898 and 1903, but later in other years. Apples are relatively more forward than any other fruit. The clusters of blossom buds were unsheathed on Beauty of Bath and Golden Spire at the end of March, an early development noticed only in 1899, 1902, and 1903. These were the only varieties out of a great number grown to show such precocity this season. In some previous years Irish Peach, Mr. Gladstone, and Bismarck have been nearly or quite abreast of the two varieties which are ahead at present.

It is impossible to avoid feeling some anxiety with respect to the forwardness of Plums, Cherries, Pears, and Apples. The danger is greatest in relation to the first two fruits, because their blossoms expand much more quickly than those of Pears and Apples. The flower-buds on the latter two fruit trees are safe enough from any ordinary frost to be anticipated at this season of the year until they unfold, and this development may be delayed by the recent bitterly cold north-east wind and night frost. On the other hand, Plums and Cherries would be brought into full blossom by a few sunny days, and probably will be in that stage before these remarks are before their readers.

In the night of April 2 there were 6° of frost at my station, as measured 4½ feet above the ground level. This was the nearest approach to severity measured since January, and it was sufficient, perhaps, to kill any stray blossoms of Plums that were expanded. Let us hope that it was also sufficient to kill any mother-queen aphides and any Apple suckers that had hatched. No doubt the frost was much more severe in the inland districts of the country.

In further reference to the aphids, it is worth while to mention that the examination of some hundreds of Plum and Apple trees during the week ended on April 2 failed to disclose a single egg, while only two mother-queens were found.

A good lens was used, and trunks and branches, as well as fruit spurs, were examined. Does this indicate immunity from aphid infestation? I fear not; for my experience in hunting for the pests and their eggs last year was similar, and yet we had the worst infestation that I have ever seen. Whence come the aphides, when they are not hatched from eggs on the fruit trees? Apparently no one knows. Myrobella Plums and Blackthorns in the hedges were included in my examination, and no aphid or aphid egg was found on either. Eggs of Apple suckers were found on Apple trees, though not in great number; and on both Plum and Apple spurs there are myriads of tiny red globular eggs, which one entomologist thinks are those of the red spider, and another believes to be those of harmless beetle mites.

Fruit-growers may be excused from appreciating the beauty of the natural arrangement under which the hatching of insect and similar pests synchronises with the varying stages of vegetation in different seasons. Apparently meteorological conditions influence development in vegetable and insect life simultaneously, so that when the opening foliage is fit for the aphid and the Apple sucker, these pests are ready for the foliage. *A Southern Grower.*

AMERICAN NOTES.

LEITNERIA FLORIDANA.

THE Cork Wood (*Leitneria floridana*) is a tall, slender shrub or small tree. It grows sparingly in Missouri, and is rarely found in the intervening area between Missouri and the saline shores of the northern side of the Gulf of Mexico. It occurs usually in swampy situations with the roots immersed in water. The plant is said to attain to the height of a small tree of 20 feet, with a trunk 4 inches to 6 inches in diameter. The simple alternate leaves are from 4 inches to 6 inches long and 1½ inches to 2½ inches broad, and at maturity bright green above and pubescent below. The catkin-like, staminate and pistillate flowers are borne on different individuals. The staminate catkins are more than twice as large as the pistillate. The flowers are yellowish and come in bloom at Rochester about the middle of April. In Missouri they bloom early in March.

About four years since, Professor William Trelease, director of the Botanic Gardens, St. Louis, Missouri, gave us about 12 plants, which were planted in peat amongst Azaleas in a warm, protected hollow in Highland Park—one of the parks of the city park system. They have made excellent growth, and some of them are over 6 feet high, and have apparently commenced to sucker, which is a marked feature of the species in a wild state, and up to the present time they show no ill effects from our severe winters. This appears to us to be rather remarkable, as the station in Missouri is about 400 miles south of Rochester. It is true there are many plants that show as much hardihood as far removed from their native haunts to a northern latitude as the *Leitneria*, but they are usually at a higher altitude, or occupy more exposed positions than this plant does.

In a private letter to the writer a short time since, Professor Trelease said, in regard to *Leitneria floridana*: "It behaves like a plant which has taken to the swamps to escape competition, like the Cypress, and not like a swamp plant by nature; and, like the Cypress, it goes through our summer drought with no more care than we give to ordinary shrubbery, and it suckers freely everywhere."

It is said to be the lightest wood known, and weighing about 12½ lbs. to the cubic foot, is lighter than cork. In contrast with it might be placed the Black Iron Wood (*Krugiodendron ferreum*), which is the heaviest known American wood, and weighs about 81.14 lbs. to the cubic foot. The Cork Wood is used by fisher-

men in Florida for floating fishing nets. The ordinal position of *Leitneria* has been considerably discussed by botanists. At the present time it is maintained in *Leitneriaceae* by Engler, and is placed between *Myricaceae* and *Salicaceae*.

It is not of any particular ornamental value, but is botanically of much interest. *John Dunbar, Rochester, N.Y., U.S.A.*

SPRING FLOWERS AT WISLEY.

It is always a delightful experience to see spring-flowering bulbs and other hardy subjects arising from the grass or natural moss covering of the soil, as if they had come there by natural means. In trim beds and borders, bulbs have a less natural appearance, are later in making their growth, and seem most appropriate when associated with formal gardening. Towards the end of March I had the pleasure of inspecting the gardens of the Royal Horticultural Society at Wisley, and in particular the wild garden laid out and planted by the late G. F. Wilson. Many of the plants have reproduced themselves from seed, and come up in a variety of positions and groups.

A large colony of *Narcissus cyclamineus* is particularly interesting on account of the variation in size and form of the flowers, some of which are as large as *N. Johnstonii*, showing how well the sandy but moist soil of the low grounds suits them. The trumpet, in many cases, is deeply fringed and more or less revolute, and in such cases it is proportionately shortened, as happens in other species having a long corona. *Narcissus Bulbocodium* springs up frequently on the grass and under deciduous trees and bushes, showing endless variation in the size and colour of the flowers, and closely resembling *N. B. citrinus*, *N. B. conspicuus*, and other named varieties. Many of them are of the palest lemon, almost white, with much larger flowers than *N. B. monophyllus*. *Leucojum vernum* is also perfectly at home, some of the plants bearing twin flowers on a scape, like *L. v. carpaticum*. The European Dog's-tooth Violet (*Erythronium Dens-canis*) has the most handsomely marbled foliage of all the species and was the first to bloom, none of the American species having made their appearance. *Narcissus obvallaris* and other named and nameless early varieties were flowering in all sorts of positions.

The bright yellow *Viola biflora*, from the European Alps, was flowering in shade all over the garden like a weed, and no doubt most of the plants are self-sown. *V. biflora* is one of the Violets, not a Pansy. The Rue Anemone (*Thalictrum anemonoides*) I have never seen so happy as on a sloping piece of ground, lightly shaded by trees. Its white flowers are more like an Anemone than the great majority of the *Thalictrums*. Under similar conditions, *Anemone nemorosa* *Robinsoniana*, thickly starred the ground with its lavender-coloured blossoms. Close by, *Meconopsis integrifolia* was pushing up its flower-buds. All the above-named plants, from *Viola biflora* to *Meconopsis*, rejoice in a little shade by which the ground is kept cool and moist. Wilson's blue Primrose, in a great variety of colours, keeps them company in its old home, secure from London fog and the deposit of filth on the foliage which are so inimical to Primroses generally, and this strain in particular. In the sandy, moist soil of the wood, *Shortia galacifolia* grows almost as strong as *Galax aphylla*.

Early-flowering shrubs are a conspicuous feature in March and April, and their choice character recalls the knowledge and discrimination of the master-hand that planted them. *Kalmia latifolia*, on a gently rising mound, makes a bush 5 feet high and 8 feet through. *Pieris japonica* measures 7 feet by 7 feet at the least, and has been covered with its drooping racemes for some time past, like showers of pearly spray. The inflorescence of *P. floribunda* is erect, the flowers whiter, and clumps of it are 8 feet high. Large patches of the sweet-scented *Daphne Blagayana*, in full bloom, show that they have

received proper treatment for years past. It is never so happy as when its procumbent branches have been weighted with pieces of stone, like the *débris* which has tumbled down from a mountain side. Healthy masses of *Skimmia japonica*, 6 feet high, are still carrying last year's berries and showing the flowers that will presently expand. This, like *Pieris*, is also planted on a low mound. A well-furnished specimen of *Ilex latifolium* stands about 25 feet high, and

respect it differs from every other European Willow. It blooms every year at Wisley, a little above the level of a small pond, but in a situation where the natural drainage from the high ground above it keeps the ground perpetually moist. Near by, under similar conditions, the American Cranberry still carries its last year's berries, overlooked by birds or distasteful to them.

A more recent addition to the garden is Nut-

FLORISTS' FLOWERS.

SELECTION VERSUS HYBRIDISATION.

Cross fertilisation is undoubtedly a great factor in the improvement of most flowering plants, yet careful selection of plants for seeding-purposes is the basis of all good results, and it requires years of experience to find out which are the best varieties of any particular class of plants to breed from. My experience has proved that it is not always the finest hybrids or most showy varieties which prove the best parents. A good fixed type is needed to start upon, and it may be crossed with another of a better colour. I have carried out a good deal of cross fertilisation and have made many mistakes.

The older generation of growers know the value of selecting plants for their own stock before selling any, but there are others who sell the best and depend upon the refuse for increasing their stock, a method sure to prove disastrous. I have been asked the question, "Why is it that market growers excel?" It is this way. Where some thousands of plants are grown for sale, a good grower is careful to select only the very best for seeding, but those who grow for seed only, merely discard the worst types, therefore the selection is less severe in the latter case.

It is much the same in regard to plants grown from cuttings, the first and strongest plants should be reserved to propagate from. The treatment of stock plants is often neglected in a busy season, with the result that they become infested with insect pests. While in charge of a large establishment, I made a point of selecting for stock both for seeding and for propagating from cuttings. There may be some subjects which do not require so much care in the way of selection. An experienced grower once said that no two plants were exactly alike, and I remember that a shepherd once said he knew the face of every sheep in a large flock. We do not often realise these things, yet it is a fact that there are great variations in individuals, and careful selection for stock is the first step towards success.

Take *Chrysanthemums*, for instance. A grower will cut his finest blooms for show purposes and the plant may be cleared out, while the same variety with the flowers of a poorer quality may be kept for stock. I remember years ago, when growing *Carnations*, I started with a strong, healthy stock, and for several years kept up a good stock, yet later, when a large trade was done, I had to increase the stock as best I could, and the results were bad.

In seedling *Conifers* there is great variation. Perhaps *Cupressus Lawsoniana* varies most. The same thing occurs in various other cultivated species. I am reminded of a remark which a friend made in regard to colours. It was to the effect that while under natural or normal conditions very slight variations are seen, as soon as animals or plants come under the influence of man, we get variations of colour. *A. Hemslay.*

RHODODENDRON PRIMULINUM.

THE plants of this species are dwarfs, and flower when but a few inches in height. *R. primulinum* bears a large number of yellow flowers, each about 1 in. in diameter, and, as will be seen on reference to fig. 101, occurring in clusters of about four or five. Plants were discovered by Mr. E. H. Wilson, when plant-collecting for Messrs. Jas. Veitch & Sons, in China, and it was from seeds sent home by him that the specimen shown in fig. 101 was raised. The plant attracted considerable attention at the R.H.S. meeting on March 22 when the Floral Committee conferred on it an Award of Merit. The species was first described by Mr. W. Botting Hemslay in the *Gardeners' Chronicle*, January 1, 1910, p. 4.



FIG. 101.—RHODODENDRON PRIMULINUM.

still carries the small, red berries of last year. It is usually trained upon a wall, but here it is merely sheltered by other trees and bushes.

The woolly Sallow (*Salix lanata*) is rare in cultivation, at least in Britain, and often dies out even when planted under seemingly favourable conditions. An inhabitant of the coldest parts of mountains and northern regions, it dislikes warm and dry situations. The long, silky catkins are densely clothed with yellow hairs, and in that

tallia cerasiformis, or Oso Berry, that strange rosaceous shrub, with drooping racemes of strongly fragrant flowers. The most common form in this country bears male flowers only, but a few of the bushes are monoecious, some racemes being wholly male and others wholly pseudo-hermaphrodite, the stamens being imperfect. The pistil consists of five carpels, and the bush ripens its small, red, Cherry-like fruits in early autumn. *A Fellow.*

NOTICES OF BOOKS.

PLANT-CHEMISTRY.*

THOUGH the leisure be denied him to keep abreast of the many advances in the study of the chemistry of plants, the horticulturist cannot but regard with satisfaction the activity displayed by chemists in the investigation of the organic compounds of vegetable origin. In illustration of this activity, we may cite the excellent series of monographs bio-chemistry issued by Messrs. Longman under the joint editorship of Messrs. Plimmer and Hopkins. The latest volume of the series is by Dr. E. F. Armstrong on "The Simple Carbohydrates and the Glucosides." Dr. Armstrong has done a difficult piece of work in an admirable manner. Starting with glucose—the sugar which green plants synthesise from carbon-dioxide, and water—he proceeds, after a thorough discussion of its chemical nature and properties, to deal with the more complex sugars, and then with the sugar-containing glucosides, of which large numbers occur in plants. It is interesting to learn that the chemist is ahead of the plant in the manufacture of sugars; for by no means all of the sugars made in the laboratory are to be found in the vegetable kingdom.

In this connection, Dr. Armstrong makes the suggestion that the sugars which occur in plants represent, as it were, a survival of the fittest (not, we may interpolate, a survival of the sweetest), and thus opens up vistas of long lines of chemical evolution.

The book will prove of the greatest value both to chemists and botanists, and in particular to that small band of workers on the border-line between the two sciences.

As an indication of the enormous amount of work which has been done on the chemistry of the sugars, we may mention that the references to original memoirs make up no fewer than 18 closely-printed pages.

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Plumbago rosea.—This plant is useful for flowering in winter, and may be propagated from cuttings easily at this season. The cuttings are best rooted singly in thumb pots, but if this is not convenient, four or six cuttings may be inserted around the edges of 3-inch pots, plunging the pots in a gentle bottom heat in the propagating frame, which should be kept close and well shaded until the cuttings have formed roots. The little plants should be potted on later as they require additional root-room, using a compost similar to that recommended in last week's Calendar for Bouvardias. Use the compost in a rather more lumpy condition for the final potting. *P. rosea* has naturally an erect habit, and for this reason it is necessary to pinch the points of the shoots from time to time during the season when the plant is growing freely. Keep them as near to the glass as possible, but provide a little shade during the sunniest hours of hot days.

Medinilla.—Cuttings of the remarkable stove plant *Medinilla magnifica* will form roots quite easily at this season, if they are removed from the parent plant with a heel attached. Any growths 2 or 3 inches in length should be selected for the purpose. Insert them singly in small pots filled with a sandy compost, water them well, and then plunge the pots in a bed having a considerable bottom heat. *Medinillas* are best cultivated as specimen plants, therefore they should be treated as liberally as possible in their early stages. Give them plenty of pot-room from time to time, and feed them occasionally with diluted manure-water from the farm-yard when the pots have become filled with roots. A suitable compost is one consisting of fibrous loam, peat, broken charcoal and lime rubble. These materials should not be broken up finely.

* The Simple Carbohydrates and the Glucosides, by E. F. Armstrong, D.Sc., Ph.D. (Longman's, Green & Co. 1910. 3s.)

Treatment of forced plants.—Plants which have been forced at this season must not be treated with neglect. Rhododendrons and Azaleas, as they pass out of bloom, should have the seed vessels removed, or the ripening process will seriously weaken the parents. Such plants need to be placed in a structure where the atmosphere is warm and moist, and where they can be syringed freely until growth is in an advanced condition. At this stage more fresh air may be admitted to the house, and the atmosphere kept rather drier and cooler, thus preparing the plants for removal out-of-doors at the commencement of the summer. If the shoots require training the present time affords a favourable opportunity for carrying out this work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to SIR TREVOR LAWRENCE, Bart., Burford, Surrey.

Catasetum, Cynoches, and Mormodes.—All the members of these genera have quaint and interesting flowers. The following species all deserve extended cultivation, and would form an excellent representative collection, which would yield many surprises to amateurs who may now be taking up their culture for the first time:—*C. pileatum* (Bungerothii) and its beautifully distinct forms, which include such varieties as *Lindenii*, *imperiale*, *aureum*, *mirabile* and *aurantiacum*; also *C. barbatum*, *C. fimbriatum*, *C. Russellianum*, *C. Scurra*, *C. macrocarpum*, *C. discolor*, *C. Darwinianum*, *C. Christyanum*, *C. tabulare*, *C. Rodigasianum*, *C. Imschootianum*, *C. maculatum*, *C. labiatum*, *C. Clesianum*, *C. laminatum*, *C. splendens*, and its varieties *imperiale*, *punctatissimum*, and *leucanthum*. Among the best of the *Cynoches* are *C. chlorochilon*, *C. maculatum*, *C. Peruvianum*, *C. pentadactylon*, *C. Warszewiczii*, *C. Egertonianum*, and *C. versicolor*. *Mormodes* are probably not so well known as *Catasetums* and *Cynoches*, but they are equally well worthy of cultivation. They include *M. Rolfei*, *M. buccinator*, *M. collossus*, *M. pardinum*, *M. Wendlandianum*, *M. Lawrenceanum*, *M. luratum*, *M. l. eburneum*, and *M. l. punctatissimum*. The majority of these plants are now commencing to grow, and, when the new growths are a few inches high, there then being no danger of the young roots being injured, the plants should be turned out of their pots and all dead roots and useless back pseudo-bulbs cut away. If the compost in front of a plant is solid and in good condition, it need not be removed, especially if it is permeated with living roots. Previous to repotting, every vestige of mealy bug and scale should be thoroughly eradicated, otherwise the pest will cause endless trouble throughout the growing season. For this purpose, we dissolve about 2 ounces of Gishurst's Compound in a gallon of boiling water, to which is added two table-spoonsful of the X.L.-All insecticide. When the mixture has become cool enough for the hand to be put in it without hurt, the plants should be thoroughly cleansed with a small, stiff brush. If mealy bug is found in the old compost, every particle should be removed and burnt; the living roots should be closely examined, and all traces of these insects carefully removed. The best receptacle is an ordinary flowerpot, with copper wire handles, about 12 inches in length, so that the plants may be kept well up to the roof-glass. The pots should be about half filled with clean crocks, and the compost should consist of *Osmunda* fibre. It is advisable to pack the fibre firmly around the base of the pseudo-bulbs, and to keep the base of the young growth just above the rim of the pot, so that the plant may be easily watered without any fear of water remaining about the base of the growths. These plants should not be sprayed or syringed overhead during the early stages of growth, as the young shoots are susceptible to injury if water is allowed to accumulate in them. The *Catasetums* and *Cynoches* should be suspended in the lightest position available in the hottest house, while the *Mormodes* succeed best in a similar position in the Cattleya house. For several weeks to come all these plants, whether repotted or not, should be watered sparingly, merely sprinkling water around the edge of the compost whenever it appears dry, but when new roots are seen pushing through the compost the quantity should be gradually increased. Every attention should be given to the plants to enable them to finish growth as early in the season as possible, so that

they may have the benefit of the late-summer and early-autumn sunshine to consolidate and ripen the new pseudo-bulbs.

Stenoglottis longifolia.—This is a very pretty, Cape, terrestrial Orchid, which thrives well upon a dry shelf in the cool house. It should be afforded fibrous loam, with some small crocks and coarse silver sand. The young growths are now beginning to develop, and, if necessary, the plant may be repotted, but repotting is not advisable while the soil remains in good condition. In such cases we remove the surface of the compost, and refill with fresh material; this has been done for several successive years, and with good results.

Bartholina pectinata.—This is another charming terrestrial Orchid from the Cape, of which a good figure is given in the *Gardeners' Chronicle* for July 1, 1899. The *Bartholina* requires similar treatment to *Stenoglottis*, but it opens its flowers better, and they last for nearly two months if removed from the cool to the intermediate house immediately the spikes appear. When in full growth these plants require plenty of water at the root, but while dormant should be kept rather on the dry side.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Potato planting.—Push forward with the planting of the main crop and late varieties of Potatoes whilst the ground is in its present excellent condition for working. Notwithstanding that the land for this crop may have been dug, it will be necessary to stir it again in consequence of the wet weather during the early portion of this year. This forking of the ground and the planting may be done simultaneously. Every effort should be made to thoroughly pulverise the soil to the full depth of the fork. As regards the distances for planting, the main crop varieties may be allowed 30 inches between the rows and 15 inches from plant to plant. If the seed tubers have been laid out singly, what growth they have made will be sturdy and short-jointed, and the tubers should be handled very carefully in order that such shoots may not be injured. Cover the sets lightly with fine soil to the depth of 4 inches. Of main crop varieties, Windsor Castle is still one of the best, whilst Duchess of Cornwall also succeeds very well in these gardens. A list of the best varieties would also include Sensation, The Factor, Langworthy, and White City. The variety named last is a recent introduction, and possesses splendid cooking qualities.

Protecting Potatoes.—As soon as the earliest crop shows growth above ground constant care is necessary to protect the haulm from frost. Keep the soil drawn closely up to the stems, and have a quantity of dry Fern or other material in readiness for placing over the growths when frost seems imminent.

Cabbage.—If this work has not been already done, the main crop of Cabbages should be earthed up as soon as possible. Make further plantations as soon as the spring-sown plants are large enough to be put out in the beds. The earliest batch will be ready for cutting, and it is better that they should be cleared off the ground rather than be left to produce a second crop. It is a better practice to make frequent small plantations, and maintain a constant supply of Cabbages by succession. From plants raised from seed sown last July we have plenty of young Cabbages ready for cutting, and these will soon be cleared off the ground to make room for the main crop of Celery.

Peas.—Make a good sowing of main crop varieties to afford supplies for about the beginning of July. It is a good practice to sow several varieties at once in order to obtain an unbroken supply of young pods. As soon as the last sowing shows above the ground another should be made. If this is done until the middle of June there is not much fear of any break in the supply, always providing the weather is favourable. Peas raised in June should afford supplies well into October. Good varieties for present sowing are Matchless Marrow, Royal Salute, Superlative, and Distinction. All these varieties grow about 4 feet high, and yield Peas of splendid quality. For exhibition purposes Quite Content is one of the best. All Peas requiring sticks should be given immediate attention, but first draw a little soil up to the plants and place a few Spruce branches along the rows to protect the tender shoots from cold winds.

Spinach.—Sow seeds of Spinach frequently. If New Zealand Spinach is sown now, it will produce an abundance of green leaves throughout the summer. The hotter the weather the better does the New Zealand Spinach seem to grow. Plants may be raised in pots for planting out when all danger from frost is past, or seeds may be sown out-of-doors in rows 2 feet apart. The plants grow freely when once they get a start, and their spreading branches soon cover the ground. Spinach Beet may be also sown at the present time, to yield young leaves in the summer and autumn. The seeds may be sown in rows 18 inches apart, and covered with fine soil 1 inch deep. As soon as the plants are large enough they may be thinned to 16 inches apart.

Tomatos.—Tomato plants raised early in March for cultivation out-of-doors will now be ready for potting. They must be kept as near to the glass as possible, and be given sufficient fresh air to keep them sturdy and short-jointed. As soon as the young plants have made fresh roots, they should be given liberal supplies of water, so that growth will be quick and unchecked.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Vine eyes.—The vine eyes inserted in January having made roots, may be moved into 5-inch pots. A suitable compost consists of good fibrous loam three parts, and leaf-mould and decomposed manure one part, with a sprinkling of soot and bone-meal, and enough old mortar rubble to ensure porosity. Let the pots first be thoroughly cleaned and crocked for drainage, and the compost should be warmed by placing it in the house a few days beforehand. In potting it is desirable to make the soil moderately firm; therefore the soil should be in a moderately dry state when used. The young vines require very careful handling, as both roots and tops are tender. The potting should be performed in the house where the plants are growing, in order that they may not be exposed to outside air. Support each plant with a neat stake and plunge the pots in leaves or tan in a light position. Shade them from the sun for a few days after the potting, and syringe them overhead once or twice each day with soft water. Root-waterings must be given very sparingly until the roots have been active for some time.

Early Peaches.—The earliest varieties have passed the stoning stage, and the fruits are in course of swelling for the second time. At this stage the fruits should be propped up towards the light by means of pieces of lath tied crossways under the shoot bearing the fruit. Any leaves which obstruct the light may also be tied back so that the fruit will be the better exposed. The atmospheric temperature may now range from 60° to 65° at night, allowing this to rise about 6° or 8° during the day. Close the house at about 2 p.m. on bright days and syringe the trees vigorously at the same time. Give frequent attention to watering, and, in the case of well-established trees, frequent applications of liquid manure may be given with advantage. Red spider is apt to infest early Peach trees where much fire-heat is used, but if the foliage is regularly and vigorously syringed with clear water, the pest will scarcely get a footing. It is important that the under sides of the leaves should be thoroughly wetted each time the trees are syringed. As soon as the fruits show signs of ripening a cooler and somewhat drier atmosphere will conduce to their development and flavour. Ventilate the house freely whenever the outside conditions are favourable, and leave the ventilators open a little at the top of the house in mild weather. Syringing must not be practised at that stage, but the paths may be sprinkled with water once or twice each day. As the trees in one house seldom ripen their fruits simultaneously, those which still show no signs of ripening may be syringed as usual.

Successional trees.—The fruits on Peach trees, which were started into growth early in the year, are now at the stoning stage. Therefore it is not advisable to stimulate the trees by high temperatures or rich nitrogenous manures, as any high stimulation or check would alike have the effect of causing the trees to cast their fruits. The atmospheric temperature may range from 55° to 60° at night, allowing the usual increase during the day. Syringe the trees twice daily in favour-

able weather, and close the house early in the afternoon on bright days. Give frequent attention in tying and regulating the growths and take care that the swelling of the wood is not hindered by ties cutting into the bark. Afford water to the roots as often as required and let the water be of the same temperature as the house at the time it is applied. It is not desirable to use more water than is sufficient to thoroughly moisten the border down to the drainage.

Later houses.—The Peach trees in later houses will need attention according to their several stages of growth. Disbudding of the shoots may be extended for a period of several weeks, as advised in a previous Calendar. These later trees usually set heavy crops, and it is advisable to remove a portion of the fruits at an early stage.

Necessity for shading.—The recent bright weather has been favourable to fruit forcing, but the bright sunshine has been somewhat trying to recently-planted vines and any other fruit trees which have been disturbed at the roots during the winter. Such as these will be benefited by a light shading in the middle of the day until such time as their increased root action will enable them to endure full exposure.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Sweet Peas.—Plants raised in pots from seed, as advised in a previous Calendar, will now be large enough for planting out in their permanent quarters; if they have been grown in a moderate temperature and have since been hardened off thoroughly they will not suffer any serious check. The ground at the time of writing is in excellent condition for breaking up and preparing a good tilth, for there has been a welcome spell of dry, fine weather. When forking over the ground, a sprinkling of artificial manure, especially that of a slow-acting nature, such as basic slag, may be applied. Stand the plants on the position they are to occupy; knock them out carefully from the pots and loosen the ball, but do not injure the roots. Allow ample space for each plant to grow, and avoid overcrowding, whether they are planted in rows or clumps. Carefully label each clump or variety as the work proceeds, and draw up the soil around the plants to protect them; should east winds be prevalent, a few twigs of Spruce or other material will afford additional shelter. I strongly advocate staking the plants immediately these are planted, and have found nothing better than good Pea sticks for the purpose. Other devices have been tried, from time to time, such as branching poles—these being very substantial as well as effective for single clumps—wire, and fish netting, but nothing is better than the best Pea sticks. Another sowing may now be made in pots or in the open ground for a succession. It often happens, in a dry season especially, that the earliest sown plants become exhausted somewhat early, and if a later batch is planted in a more shady and cooler part of the garden, a continued supply of fresh flowers may be maintained.

Annuals.—In favoured positions a sowing of many of these may now be made out-of-doors, whenever it is possible to make a good seed-bed. Both in the borders, and in bare positions in the front of the shrubberies and clumps, these make an effective display, and provide useful material for vase decoration. To produce the best results, however, the plants must be allowed to develop in a free, uninterrupted manner from the very earliest stages, therefore vigorous thinning should be carried out in order to promote a sturdy growth. Godetia, Nigella, Clarkia, Eschscholtzia, Coreopsis, Dianthus, and Mignonette are a few plants which we find particularly useful for this purpose. For a dry sunny bank or similar position where a blaze of colour is required, a sowing of *Portulaca grandiflora* will produce a brilliant display of varied and rich colours.

Summer bedding plants.—Many of these will now be needing cooler quarters. The hardy annuals which have been raised in heat and pricked out into boxes and grown in cold frames may now be stood out-of-doors, and a skeleton frame erected so that they may be covered at night. Lobelia and Pyrethrum will make better plants if transferred from the boxes into shallow frames, in not too deep a soil and grown on close

to the glass, gradually hardening them off. Violas which were rooted last autumn in frames or boxes and are intended for bedding must have the flowers removed periodically and the surface soil stirred. Small plants of Pelargoniums, Fuchsias, Calceolarias, Swainsonias, &c., may be removed to cold frames, and the lights entirely removed in warm, sunny weather. Stop the shoots and endeavour to form neatly shaped, bushy plants. Standards of the same subjects will also need stopping to induce them to form good heads, and these, too, must be inured gradually.

Hollies, &c.—The present is the best month for transplanting plants such as the Holly, especially when warm showers are prevalent. Dry, cold winds are especially detrimental to freshly-moved plants. Many species of Pinus and other Coniferae move well now, just as the new season's growth is forming. Apply a mulch to them after planting.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Alpine Strawberries.—In gardens where Alpine Strawberries are likely to be appreciated, the plants may easily be raised from seeds sown during the present month. They should be sown thinly in boxes, which should be placed in a moderately warm house, and, as soon as the seeds have germinated, exposed to the light as much as possible. When the plants have become large enough to handle, they should be pricked off into other boxes, keeping them in the same temperature until the roots have become established in the soil, when the boxes may be removed to a cooler house or frame, in order to harden the plants gradually, preparatory to planting them in the positions in which they are desired to fruit. These seedlings should be planted at distances of 15 inches apart each way; they prefer a rather light soil which has been deeply worked and liberally manured. The ground should be consolidated well before planting is commenced, and if dry weather follows immediately after planting, artificial waterings will be necessary, whilst an occasional application of soot-water will serve to prevent the attacks of red spider and of insect pests generally. The first flower trusses may be pinched out, also the runners until the crowns have become quite strong. If the plants are treated in this manner they will furnish good crops in the following season—that is, from June well into the autumn months. Some of the best varieties include Improved Large Red and Improved White.

Autumn-fruiting Strawberries.—These are valuable because dessert fruits are not obtainable in great variety late in the season. The plants succeed best in a deep, rich soil, which has been deeply dug or trenched some considerable time previous to planting, in order that it may become consolidated before the new beds are formed. It is not too late to make new beds. St. Antoine de Padoue and Laxton's Perpetual are two of the best varieties. Both these kinds may be put out at distances of 18 inches apart each way. Planting should be carried out when the soil is in a good condition so that it may be trampled well before any of the plants are inserted. As soon as they are established they will need frequent applications of liquid manure. If it is desired to have a few very late dishes of fruit during October and November, a number of runners should be layered during the early part of July, into 5-inch pots. See that the receptacles are perfectly clean and are provided with good drainage. The compost should consist of good, turfy loam, pulled to pieces by the hand, three parts, and decayed manure with a sprinkling of wood-ashes and soot, one part. The soil should be made very firm in the pots by means of a potting stock. When the plants have become well rooted they may be given liquid manure once or twice each week until good crowns are formed. All runners must be removed and the flower-spikes pinched out until the plants are required to produce fruit. Autumn-fruiting Strawberries should be placed in a cool frame in October in order to have them under proper control; they can then be brought into fruit as required. Mildew can only be kept in check by careful ventilation, this preventing a close and stagnant atmosphere. If mildew makes its appearance, the plants should be dusted with flowers of sulphur or treated with Campbell's sulphur vaporiser.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, APRIL 11—
Surveyors' Inst. meet. United Hort. Ben. and Prov. Soc. Com. meet.

WEDNESDAY, APRIL 13—
Roy. Caledonian Hort. Soc. Spring Sh. in Waverley Market, Edinburgh (2 days). Cornwall Daffodil and Spring Fl. Sh. at Truro (2 days).

FRIDAY, APRIL 15—
Dutch Bulb Growers' International Sh. at Haarlem (10 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—46° 3'.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, April 6 (6 P.M.): Max. 54°; Min. 39°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 7 (10 A.M.): Bar. 30.0; Temp. 47°; Weather—Overcast.

PROVINCES.—Wednesday, April 6: Max. 51° Cambridge; Min. 42° Scotland, E.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous and Border Plants, Lilies and Hardy Bulbs and Roots, at 12; Roses and Fruit Trees, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Perennials and Border Plants, Lilies, Begonias, Gladiolus, &c., at 12; Trade Sale of Miscellaneous Bulbs and Roots, at 12; Roses and Fruit Trees, at 1.30; Japanese Lilioms, &c., at 2; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Management of Common and Street Trees.

The important and wholesome part played by avenues, parks, and open spaces generally in the economy of urban life is gradually becoming understood. Year by year more thought and money are expended upon this branch of municipal work, to the advantage of the ratepayers. In many towns the authorities strive to secure all the available land they can for purposes of recreation, and they are often assisted by outside Societies interested in the preservation of land for the people.

Whilst there are scarcely two opinions as to the advisability of providing public grounds, there are always many ideas expressed regarding the manner in which such places should be dealt with and controlled. Indeed, few questions give rise to more diversity of opinion, or evoke more criticism than does the management of public grounds, whether these are laid-out parks, commons, heaths or downs. Such criticism is not merely confined to those whose intimacy with these matters entitles them to give an opinion, but the general public is a party to it, and thus we find that the subjects are discussed intelligently in the daily Press.

For a week or two past a number of interesting articles, together with considerable correspondence, have appeared in the *Times*, dealing with the regulating of commons, so as to secure them for all time for the use of the public, the preservation of the present character of Hampstead Heath, and other cognate matters.

With reference to the regulating of commons much useful information has been given concerning the services rendered by the Commons Preservation Society—a society which has done much to save, for public use, land, which otherwise would have been converted to other purposes. The authorities in provincial towns where any common land exists would obtain much useful information and assistance by putting themselves in communication with this body.

We are tempted to think that the regulating of commons for public use should be dealt with quite independently of local feelings, and should be undertaken by a Government department as one general policy. It does seem unreasonable that the public should suffer from the parsimonious attitude of a local authority in refraining from putting the law in motion simply from a fear of increasing the local rates. This, it appears, has happened in several localities in different parts of the country.

Directly a common comes under public control the question arises, How is it to be administered? In this problem there is room for much difference of opinion. At the present time the London County Council is being severely criticised by the Hampstead Heath Protection Society for its method of dealing with Hampstead Heath. The complaint of this Society is that the planting carried out by the Parks Committee this season bids fair to destroy the characteristic features of this popular open space, and there seems to be much reason for the criticism.

Whilst it is advisable, as a general rule, not to interfere with the characteristic features of a common, there are instances where it would be unpardonable stupidity to alter them in the slightest degree, much less impart to them a park-like character. On the contrary, we know of certain commons—formerly little better than “howling wildernesses”—that, since their purchase by the Corporation, have been converted into beautiful parks, and made the home of the best kinds of flowering trees and shrubs. It is obvious that no hard and fast rules should be laid down, and that the dictates of a cultured taste, assisted by experience and sound common sense, are the best guides in such matters. One thing, however, is fairly certain—that is, no hybrid method of dealing with such grounds can prove satisfactory; they must either be preserved in their old character or laid out and planted afresh. As a rule, it is safe to say that the former policy is generally the more satisfactory, and therefore, on no account should any exotic trees and shrubs, not previously represented on the ground, be introduced. If tree planting has to be done it should be carried out with care. There is nothing more difficult than to plant young trees in such a way as to imitate nature, for we are so apt to plant in rows and stiff groups that our handiwork betrays us. If planters could scatter young trees about as one scatters Daffodil bulbs,

and plant them where they fell, much formality and stiffness would be obviated. Failing some such method, the person responsible for carrying out the planting should study the manner in which young trees spring up in a copse, where nature has controlled the issue; the better he learns his lesson the more pleasing will be the result of his own work.

If such care must be exercised in planting new trees on a common, needless to say an equal amount of care must be shown in the preservation of the trees already growing there. While we disagree with the assertion made in the *Times* that “among many gardeners and foresters there is a certain professional satisfaction in the use of the saw for its own sake,” we know it to be a fact that the untrained men often employed by public bodies to carry out this kind of work are responsible for a great deal of wanton destruction. The untrained men are, as in the present case, often confounded in the public mind with the trained exponents of the art of tree culture, who are blamed for the shortcomings of the labourers.

Closely akin to this is the question of the proper management of street trees. Here, again, considerable criticism has been offered with respect to the way the Camberwell Council has dealt with the trees in Camberwell Grove and Grove Park.

It appears that, in the opinion of this Council, the trees in certain districts of the borough have grown out of bounds, and, in some instances, have become a danger to the public. As a result, a wholesale pruning, lopping, and cutting down of trees has been in progress for some time, and this work has, apparently, been confined mainly to the “unemployed.” In these days, when the columns of the daily papers are open for the ventilation of every kind of public grievance, there is but little likelihood that work of this description can fail to arouse protest. The present case is no exception. This is as it ought to be, and tends to serve as a warning to public authorities to prevent them from taking in hand work of this character without first satisfying themselves that it is not merely desirable but absolutely necessary. The Camberwell Town Clerk assures the public that they have had expert opinion—and that what appears on the face to be wilful vandalism may prove in time to have been the means of sparing many of the trees for a further term of usefulness and beauty.

The whole subject of the planting and maintenance of street trees is necessarily attended with many difficulties which the layman can hardly be expected to appreciate. It is very easy to condemn—true tree lovers can hardly refrain from condemning—the annual mutilation of street trees. This method of dealing with trees is abhorrent to the instincts of the arboriculturist, and we are assured that the Parks superintendents, under whose direction the work is invariably carried out, thoroughly dislike having to do it. Unfortunately, however, there is but little choice in the matter, for the conclusion is forced upon us that trees growing in crowded thoroughfares must be kept in bounds, no matter how much they are mutilated in the process, or how much labour is spent on them each season. It is hard for tree lovers to admit this, but

it is a disagreeable fact, and must always be so until streets are constructed with some regard to the possibility that they may be required subsequently to serve as avenues.

It is often asserted that much needless pruning takes place simply because the wrong kinds of trees are planted in towns. We have much sympathy with this view, for it is a fact that there are certain kinds of trees—especially those of a fastigate character—which are specially suitable for town-planting and need very little pruning, but it is equally true that only strong, fast-growing forest trees are suitable for the busiest parts of towns. In such places the branches must be high enough to be out of the way of traffic, in which case they ought not to be lower than 14 feet from the ground.

Apart from the rigorous pruning which has to be carried out to keep branches from interfering with traffic, the residents in private houses often worry the authorities to have trees near their dwellings lopped or cut down altogether; they sometimes go so far as to threaten legal proceedings if this is not done. What with the protesting householder and the people who object to a single branch of a tree being pruned, the lot of those charged with the management of public trees is not an enviable one.

At the same time, if the branches of street trees growing in such places as Camberwell Grove were systematically thinned out and the more obstructive branches shortened, there would never arise the need to prune and lop in the manner recently adopted by the Camberwell Council. Where lopping is really necessary it is desirable to treat a few trees each season rather than to lop all the trees of an avenue at one time. The system of thus pruning by instalments is practised with marked success in some provincial towns.

THE INTERNATIONAL EXHIBITION.—The meeting which took place on Tuesday last to consider the desirability of holding an international horticultural exhibition in 1912, decided in favour of the project. On another page will be found a report of the proceedings, which, if not remarkable for a display of enthusiasm, were, nevertheless, attended with unanimity. There was no discussion, except by members of the R.H.S. Council. A provisional committee was appointed, with power to add to the number of its members. This committee will need to be strengthened greatly, for as it is at present constituted it is by no means representative of practical interests. Whilst many of the names of the members of this committee may be of importance in respect to the provision of a guarantee fund, there are few which we recognise as those of men who are familiar with the best exhibitions which have been held on the Continent. No doubt this will be rectified at the first meeting of the committee.

SCOTTISH HORTICULTURAL ASSOCIATION.—The annual Chrysanthemum exhibition will be held in the Waverley Market, Edinburgh, on Wednesday, Thursday and Friday, November 16, 17, 18. The schedule includes 103 classes, and of these, exclusive of the decorative section, 29 are for Chrysanthemums solely. The remaining classes are for plants, fruits and vegetables. Prizes are presented by the Lord Provost, Magistrates, and Town Council of Edinburgh. The City of Edinburgh Cup and £12 is offered for the best exhibit of 15 vases of Japanese Chrysanthemums

in 15 varieties, three blooms in each vase; whilst the Scottish Challenge Cup goes to the winner in the class for eight vases of Japanese varieties, distinct. In a class for private gardeners and amateurs for six vases of Japanese Chrysanthemums, the prizes are £4, £3, £2, and £1 respectively.

SWANLEY HORTICULTURAL COLLEGE.—The annual meeting was held at Caxton House, Westminster, on March 22, under the presidency of the Hon. Sir JOHN COCKBURN. The report states that there is a steadily increasing demand in secondary schools for "Garden Mistresses" who are competent to teach outdoor work as well as scientific subjects. Of the 26 applications received for teachers of gardening and nature study in schools and institutions and gardeners in charge of school gardens, nine have been filled by students from the college. Twenty-eight applications for head gardeners have been received, and 18 for companion and under gardeners, and of the former six have been engaged, and of the latter 11, through the agency of the college. More than a dozen requests have been received to recommend past students for garden designing, advisory and temporary work. Nine students have started market gardens of their own in England, one in Ireland and two in California. The governing body appeals to its many friends for increased support.

CYCLAMEN. A week or so ago a remarkably good plant of Cyclamen reached us without any indication of who sent it. The plant is in a 5-inch pot, and bears an abundance of well-expanded flowers of rosy-carmine shade approaching salmon-rose. It is certainly amongst the best flowering specimens of this plant we have seen. A ticket attached to the box containing the plant showed that it was sent by the London, Brighton and South Coast Railway from Emsworth to London Bridge.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, have sent a bloom of a rosy-crimson Cyclamen of the crested type, with white margins and white tips to the crests. The ground colour forms a fine contrast to the white edges, and the variety, which has been named Eileen Low, forms a pleasing and attractive plant. Messrs. Low inform us that the variety comes true from seed.

MR. JAMES WALKER.—We learn that this distinguished gardener, who is the senior member of the Ham Common Urban District Council, is shortly terminating his connection with local affairs. Mr. WALKER is a native of Rutherglen, one of the oldest burghs in Scotland. In 1875 he acquired the business of a market-gardener which had been carried on with much success by the late Mr. DECIMUS CLARKE, at Whitton, near Twickenham. Eight years later, in 1883, Mr. WALKER acquired the Farm at Ham, on which he still resides and where he has developed a large and important industry, particularly in fruit and flowers. Mr. WALKER paid special attention to the culture of Daffodils, and was a pioneer in growing these flowers for the London market. Since 1885 he has been a member of the Floral Committee of the Royal Horticultural Society. He was offered the distinction of V.M.H., but, with characteristic modesty, he declined to accept the honour.

FRUIT GROWING IN MID-ULSTER.—At a largely attended meeting of fruit-growers, held at Portadown, Ireland, on March 26, it was resolved to form a fruit-growers' association, and representatives of the Department of Agriculture, who attended, promised the support of that body. Professor CAMPBELL said that because fruit-growing does not show speedy profits, many farmers neglect it. But in districts like Mid-

Ulster, where fruit orchards are already plentiful and the people know something of the industry, there should be small difficulty. One speaker said he thought they would find that the markets in Dublin and Belfast would not be able to take all the fruit that would be produced. In Dublin, at any rate, the market is far from being overstocked with Irish fruit. On the contrary, English and foreign fruit is sold very extensively even when Irish fruit is in season.

MR. GEORGE WYTHES, treasurer of the National Vegetable Society, having removed from Brentford, requests that all communications shall be sent to Bovington, Hertfordshire, his present address.

THE CARNATION YEAR BOOK.—This brochure is compiled very much on the lines of the *Sweet Pea Annual*, and is a record of the doings of the Perpetual Flowering Carnation Society, with articles concerning the history, cultivation, hybridisation, and the decorative value of the Perpetual-blooming Carnation. The membership of the Society is 230; the president is Lord HOWARD DE WALDEN, whose portrait forms a frontispiece to the year-book. A list of Carnations compiled from American sources should be valuable for reference. Mr. FELTON's remarks on the decorative value of Perpetual-flowering Carnations, and his list of varieties for blending in effective contrasts, are very informative. According to Mr. E. F. HAWES, the varieties most suited for cultivation in the open border are Britannia, Mrs. T. W. Lawson, White Perfection, Enchantress, President, Robert Craig, Harlowarden, Lady Bountiful, Nelson Fisher, Afterglow, Beacon and Winsor. Copies of the Year Book can be obtained by non-members from the Editor, Mr. J. S. BRUNTON, Westbourne Grove, Ighitehill, Burnley, price 1s. 2d. free by post.

SHAKESPEARE FESTIVAL CELEBRATIONS, 1910.—We understand that the decoration of the streets, public buildings, and houses in Stratford-upon-Avon during the celebration of the Shakespeare Festival promises to be on more beautiful and natural lines than the conventional decorations of flags, coloured masts, and artificial festoons usual on such occasions. It has been decided to rely mainly on festoons of evergreens and devices in natural foliage and flowers, among which will be displayed, as far as possible, the flowers and plants familiar to the readers of the great poet. Upwards of three miles of evergreen festooning will be required, and the Decorations Committee, EDWARD DREER, Esq., Mayor of Stratford-upon-Avon, A. D. FLOWER, Esq., chairman of the Governors of the Shakespeare Memorial Theatre, and F. R. BENSON, Esq., director of the dramatic performances, have issued an appeal for help in the matter of cut evergreens. Though the appeal has met with a ready response, yet more assistance in this direction would be welcome. Mr. J. O. CLARKE, The Gardens, The Poppars, 20, Avenue Road, Regent's Park, London, honorary advisory expert to the Decorations Committee, who is taking the lead in preparing the festoons, writes that he is running short of evergreens, and would be glad to receive at the above address, and pay carriage for, sacks, or crates, of cut Laurel, Bay, Yew, and Box, sent by goods train and at owner's risk. The festoons have to be sent off on April 19, so that any who are assisting in the work should attend to it at once. Branches of Rosemary or any other Shakespearean shrubs would be of great use. If any generous lovers of Shakespeare are inclined to supply festoons ready made, they are to be 22 feet long, with 2 yards additional rope at each end, No. 3 sash line.

R.H.S. GARDENS CLUB.—In accordance with the decision at the reunion last year, the annual meeting for 1910 will again be held at Wisley Gardens. The date has been fixed for Saturday, June 11. The time of trains and other details have yet to be arranged, but they will be obtainable later from the hon. sec., Mr. R. J. WALLIS, Cudworth Nurseries, Newdigate, Surrey.

ALPINE PLANTS.—At a recent meeting of the Wimbledon Gardeners' Society, Dr. BRETLAND FARMER, F.R.S., delivered a lecture on "Alpine Plants." He said that it was almost impossible to get as good results in cultivation as when these plants were growing in their natural wild haunts, the chief drawback being the climatic conditions. On the mountains they had magnificent clear air, bright light, more sun rays, low temperature and perfect drainage, and these conditions tended to dwarf the plants and to brighten the colours. The British Isles had a splendid variety of Alpines if one only knew where and how to seek them. He found the most favoured spots were those having a north or north-east aspect, and where the strata of the rocks sloped inwards. The latter fact was a very important one, as the inward slope allowed for the penetration of moisture to a sufficient depth to give nourishment to the plants in very dry weather. Views of the mountain La Meije in the French Alps, taken during an expedition, were shown, and the lecturer described the various plants found there, some of the finest specimens being discovered on the very summit, some 15,000 feet above set level. He concluded by showing views of the Edinburgh rock-garden.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PAMPAS GRASS AND TRITOMAS.—Few hardy subjects are more suitable for planting in groups, to give a pleasing effect in the autumn, than these intermingled. The writer has a vivid recollection of a large, mixed mass of Tritomas and Pampas Grass, as seen in the mid-'sixties of last century. The position was an open glade facing south, surrounded by Rhododendrons in variety, with a background of forest trees, mainly Oaks and Cedars of Lebanon. The place was the home grounds attached to Packington Hall, Coventry. The season was, if he recollects rightly, a fine, warm one; at any rate, the gardener (Mr. J. G. Temple) gathered quite a lot of ripe seed from the Tritomas that year. The object, when planting, was partly with a view to form cover for pheasants at a favourite "rise" for shooting in November. Unfortunately the Pampas Grass is liable to injury from frosts in very severe winters in some districts. But the combination is worth trying, and the present is a good time to plant both subjects. H. J. C.

PRUNING WALL TREES THE FIRST YEAR AFTER PLANTING.—A correspondent, writing under the above heading (see p. 203), advocates the cutting back of the individual shoots of wall or trellis trees to within 8 or 10 inches of their bases the first year after planting, thereby wasting a period of two or three years in the formation of evenly furnished fruiting trees. He says: "What is required is to obtain the largest area of established tree growth in the shortest space." And a few lines lower down he says: "The way to obtain such a tree is by vigorous pruning of the unpruned growths the first year after planting." What I recommended in my note as the result of many years experience was that the young shoots should be left their full length, except any that have grown excessively strong, which may be topped in order to promote a balance of growth in the trees. The first spring after planting the young trees, when the sap begins to rise, bend the unpruned shoots towards the ground and secure them to the trellis or wall, the bend starting from the point at which the first of the young growths is desired. The check thus given to the flow of sap causes a sufficient num-

ber of wood-buds to push from each shoot to form a good-sized, fan-shaped tree the first year after planting. As soon as the buds nearest to the base have pushed into growth, the bands of raffia should be cut, or the nails withdrawn, as the case may be, and the main shoots trained on the wall or trellis after the manner of a hand and distended fingers. The young shoots, when developed, must be trained at proper distances over the intervening spaces. I cannot understand his aversion to the extension system of fruit-tree training as set forth in my short, and, I think, perfectly clear, note, more especially as the very results which your correspondent rightly claims to follow the "cutting-back" of the young shoots the first year after planting are obtained by following the system I recommended; the only difference being that large, perfectly-shaped, fruit-bearing trees are secured thereby a few years earlier. That is all. In conclusion, I may say what all practised gardeners know well, that young wall trees, when procured from the nurseries, have from three to five extra strong, central shoots, which, if cut back to within 8 or 10 inches of their bases, would probably result in producing even stronger growths than the first. But by bending these strong central shoots in the direction of the ground and treating them as recommended above, they will produce good healthy fruitful growths along their entire length. H. W. W.

A NOTE FROM VENTNOR.—The weather at Easter was grand; day after day, from early morning till late in the afternoon, there was glorious sunshine. The following records of hours of sunshine, may be interesting:—Good Friday, 6 hours; Saturday, 2 hours; Easter Sunday, 6 hours; Monday, 11 hours; Tuesday, 8 hours; Wednesday, 8 hours; Thursday, 11 hours. In this sunny island there are now abundant flowers out of doors. I noticed in the park a tall plant of *Dracæna indivisa*, with large bunches of flowers. The following plants are in full flower:—White *Arabis*, *Aubrietia* in variety (very fine), *Polyanthuses*, Wallflowers, white and yellow *Alyssum*, *Coronilla*, *Primroses*, double and single *Daffodils*, *Polyanthuses*, *Narcissi* in variety, *Marigolds*, *Ribes atrosanguinea*, *Almonds*, *Veronicas*, *Violets*, &c. Although flowers are abundant, the trees of every description are later than usual. London Nurseryman.

THE PLATES OF THE "BOTANICAL MAGAZINE."—Is it not possible for something to be done to improve the colouring of the plates in the *Botanical Magazine*? For the best part of a century these illustrations have generally been all that could be desired from an artistic standpoint. Of recent years the accurate engravings of careful drawings have often been more or less spoilt by bad and frequently too opaque colouring, however good the originals may be, so that some subscribers would doubtless prefer them uncoloured. As the three-colour process has made such extraordinary development during the last few years, would it not be possible to adopt it in Curtis's *Botanical Magazine*? I understand it is merely a question of cost which prevents the plates from being more carefully hand-painted to-day. H. S. Thompson.

DAHLIAS.—An interesting experiment has been carried out in America, an account of which is given in a recent *Bulletin* of the Bureau of Plant Industry, U.S. Dept. of Agriculture. Four years ago a new species of *Dahlia* (*Dahlia chisolmii*) from Mexico was crossed with a variety known as the Twentieth Century *Dahlia*. The seedlings were strictly intermediate between the parents. In the F₂ generation a larger assortment of forms and colours was obtained. About 50 were saved for further crossing and selection. The following summer these were crossed with pollen from the Cactus and other varieties. It is claimed, as a result, that a few crosses were produced which show that varieties may be raised in this way with large and well-formed flowers, some of them equal in these respects to our best varieties bred from plants in cultivation for nearly a century. Is not this just such a result as one would expect seeing that the accumulated qualities of a century would be introduced by the pollen parent? If our American friends could discover a hardy type of *Dahlia* and work on it, they would make the world their debtor. W.

CAPPARIS SPINOSA.—I wonder whether any reader can help me in the growing of *Capparis spinosa*. The seed comes up pretty easily and regularly, but then the plants hang fire and ultimately die. I have tried keeping them in a cool greenhouse and planting them out at the foot of hot walls, have given them old mortar in abundance and have tried them without. I have planted them on walls horizontally, as one sees them growing in Italy. One note I have, upon which I have not acted, which says, "Plant out late in autumn." As it is a plant for which I have a great admiration, and which once did extremely well here, I should indeed be grateful for hints. I have planted the seedlings in drain pipes let in horizontally or with a gentle downward slope on to a raised rockery. A plan for raising the seeds, by placing one or two in a ripe Turkey Fig and placing the Fig in a hole in a wall, has not proved successful. A. C. B.

OLD ENGLISH DOUBLE WALLFLOWER.—One seldom sees this charming herbaceous perennial, although when grown in a mass, like *Arabis* or *Aubrietia*, there are few more attractive subjects. The plant does not produce seed. It is quite distinct from the German double Wallflower, being smaller in the flower, yet it is dainty in form and of a pleasing, soft yellow colour. The plant is perfectly hardy, but resents disturbance. I enclose a handful of spikes cut from plants growing in Earl Morley's garden at Whiteway, Chudleigh, whose gardener cultivates successfully many of these almost-forgotten but highly interesting English garden plants. This Wallflower is lightly but delightfully scented. A. Hope. [The small, individual flowers were very double and like tiny Banksian Roses. They were fragrant and very attractive.—EDS.]

LATE CULINARY APPLES.—For some years past I have obtained a supply of cooking Apples well into May. Although last year was an unfavourable one for late Apples our stock is by no means exhausted. The great point in keeping Apples is to gather them at the proper time, for if they are harvested before they are quite ripe, shrivelling and general bad keeping will be the result. The room in which our Apples are stored is situated on the side of a north wall, and no provision is made for heating it. The varieties that we grow for providing a late supply of Apples are Alfriston, Annie Elizabeth, Striped Beefing (these three are alike good for either cooking or dessert purposes), Bramley's Seedling, Lane's Prince Albert, and Tower of Glamis. Bramley's Seedling I consider the very best of all for a late supply, but Prince Albert is almost as good. We have fruits of both these varieties in a plump, firm condition, and they promise to keep well for some considerable time yet. Since Christmas, and up to the present time, we have been using Tower of Glamis. Trees of this variety should be planted in every garden, as it is a strong grower, rarely fails to furnish a good crop, and the shoots are never troubled with canker. Although there are doubtless other good, late, culinary Apples, the half-a-dozen I have named will be difficult to surpass. Wilmot H. Yates, Rotherfield Park Gardens, Hants. [Our correspondent sent some excellent examples of Tower of Glamis with this note.—EDS.]

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 5.—There was again a highly successful meeting on Tuesday last, the occasion being the usual fortnightly exhibition. The Hall was filled with, principally, floral groups, many being Orchids; two exhibits of these flowers were outstanding features, and one from H. S. Goodscot, Esq., was awarded a Gold Medal. The ORCHID COMMITTEE conferred three First-class Certificates, three Botanical Certificates, and three Awards of Merit.

The exhibits before the FLORAL COMMITTEE included important groups of Cinerarias, Carnations, forced flowering shrubs and trees, Roses, Begonias and hardy flowers. This Committee granted three Awards of Merit.

There were many groups of bulbous flowers, a magnificent exhibit of seedling *Daffodils* shown by Mr. A. Wilson receiving a Gold Medal. The

NARCISSUS COMMITTEE inspected several new varieties, but made no Award to a novelty.

The exhibits in the fruit and vegetable section were unimportant, and no award was made to a novelty. At the afternoon meeting in the lecture room, an address on "The Use of the Spectroscope in the Study of Plant Life" was delivered by Prof. Henslow.

Floral Committee.

Present: Henry B. May, Esq. (in the Chair), and Messrs. W. J. James, Chas. E. Shea, Chas. Dixon, R. Hooper Pearson, T. W. Turner, George Gordon, G. Reuthe, W. J. Bean, Jno. Green, Chas. T. Druey, Arthur Turner, W. P. Thomson, E. H. Jenkins, J. T. Bennett-Poë, Geo. Paul, Chas. E. Pearson, Herbert J. Cutbush, Chas. Blick, Jno. Jennings, J. F. McLeod, Wm. Howe, and C. R. Fielder, and Rev. F. Page Roberts.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, furnished one of the largest tables with Cinerarias, having the plants in batches of colours, which gave a fine effect when viewed from either end. Most of them were of the strain known as Feltham Beauty, and these were in batches of light and pale blue, pink, white and rose. The inflorescences are very compact, light and graceful, and each plant makes a perfect table specimen. An Award of Merit was given to the strain. Other kinds were Veitch's Superb, in a variety of shades, very broad in the petal and approximating to the florists' Cineraria; Antique Rose of a unique shade, the growth being dwarf and compact, and Matador, a novelty of a shade of reddish-scarlet, of the habit of Antique Rose. As a separate exhibit, Messrs. VEITCH showed an imposing group of forced shrubs with a bank of Polyantha Roses in front. The group found room for several plants of a handsome Dracæna, named atropurpurea; also very pretty were several pans of *Shortia galacifolia*. The other subjects were *Andromeda speciosa* cassinefolia, *Acacia juniperina*, *Viburnum Opulus* var. sterile, *Veronica Hulseana*, *Cytisus præcox*, and *Azaleas* in variety. (Silver-gilt Flora Medal.)

Mr. W. H. PAGE, Tangley Nursery, Hampton, showed, as on several former occasions, Perpetual-flowering Carnations in great numbers, and these were contrasted with immense bouquets of Lilies. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, made an imposing display with forced flowering shrubs, overhung by very fine Kentia Palms. The gorgeous masses of colour provided by *Azaleas*, *Clematis*, *Lilacs* and similar subjects were the subject of comment. Some standard plants of *Weigela Eva Rathke*, *Cytisus Andreanus*, *C. præcox* and *Lilac* were used as foils. On a table opposite, Mr. RUSSELL showed two plants of the elegant-leaved *Anætochilus petola* and *A. setaceus* in fine condition, also a standard specimen of *Metrosideros floribunda*, and several well-bloomed plants of *Gardenia floribunda*. (Silver-gilt Banksian Medal.)

Messrs. STUART LOW & CO., Bush Hill Park Nursery, Enfield, had a pretty display of a miscellaneous character, which included many dwarf and strong-growing Rambler Roses in pots, all profusely flowered, namely, White Pet, very dwarf and floriferous; Crimson Rambler, Flower of Fairfield, a brightly-coloured variety and double-flowered; the new, double-flowered Mrs. Taft, the blooms developing in terminal bunches; White Baby Dorothy, White Killarney; Tausendschön, Queen Alexandra, with double rose-pink blossoms $2\frac{1}{2}$ inches in diameter; and, lastly, a novelty named Orleans, with double flowers of a bright crimson tint, white in the centre. Beside the Roses, there were greenhouse *Ericas*; a number of *Acacias*—including *A. cordata* and some standards of *A. armata pendula*, an improvement on the type, with larger and more abundant flowers; *Boronia megastigma* and *B. heterophylla*; *Eriostemons*; *Pimelea spectabilis*, *Sparmannia africana* and other subjects. The same firm exhibited several fine Perpetual-flowering Carnations, viz., C. P. Passett, Rose Dorè, White Perfection, and Mrs. L. Burnett. (Silver Flora Medal.)

Messrs. PAUL & SON, Old Nurseries, Cheshunt, showed polyantha Rose Jessica, a variety with the small crimson blooms having a white centre; numerous sorts of *Azalea mollis*, *Cytisus* (Brooms) in variety, including *C. Handsworthensis*—the white flowers are flushed with pink

and produced on long racemes. There were other seedling forms of *Cytisus*, having varied colouring in the flowers. *Deutzia gracilis carminea*, the white blooms flushed with pale rose, is a desirable novelty. A number of *Lachenalia* seedlings under names were also noted.

Mr. P. LADDS, Swanley, showed excellent intermediate Stocks of good habit and full of bloom.

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, arranged a large bank of flowers in varieties of dwarf Roses in batches, with clumps of *Pelargonium Clorinda*, large-flowered *Clematises*, with a bunch of *Boronia megastigma* and some delightful Pansies at appropriate spots. The whole was set in a ground composed of choice Ferns, and at the back was a row of the variegated *Acer Negundo*. The varieties of Roses were Mme. Levavasseur, White Pet, Phyllis, and Baby Dorothy. The Pansies were remarkably fine, representing a splendid strain of the giant type, the blending of colours in the blooms being especially good. (Silver Flora Medal.)

Messrs. WM. CUTBUSH & SON, Highgate, London, N., made an imposing exhibit of forced flowering shrubs, using these as a background to varieties of hardy and Alpine plants. There were such floriferous subjects as *Pyrus Scheideckeri*, *Rhododendron Jacksonii*, White Lilac, *Wistaria sinensis*, *Magnolia Halleana*, *M. amabilis*, and *Pyrus japonica* vars. *coccinea* and *rosea plena*. Amongst the Alpines we noticed a fine display of *Hepaticas*, especially the double blue variety; *Anemone vernalis*, very finely in flower; *Edraianthus serpyllifolius*, *Tulipa Clusiana* with white and red stripes alternately, and *Sanguinaria canadensis* with the flowers held in position by the unexpanded leaf. Messrs. CUTBUSH also made a splendid display with Carnations of the perpetual-blooming type, showing bunches of all the best kinds in remarkably fine blooms. (Silver-gilt Banksian Medal.)

Mr. H. BURNETT, St. Margaret's, Forest Road, Guernsey, made a display with Carnations. The quality of the blooms was unsurpassed by any in the Hall. Countess of March (soft salmon-pink), White Perfection, Mrs. H. Burnett, Marmion, Afterglow, Bay State (white splashed with red), Pluto (clove), and Emperor (rose flaked on white) are a selection. (Silver Flora Medal.)

Mr. G. ENGELMANN, The Nursery, Saffron Walden, showed bunches of the clove-coloured *Carnation Carola*, with perfume like the Old Clove; also White Perfection, White Enchantress, Vinca, Winsor and other well-known sorts. (Silver Banksian Medal.)

Messrs. H. CANNELL & SON, Swanley, Kent, staged a batch of the tall-flowered *Begonia Saturne*, each plant having not fewer than 20 flower-spikes. The long peduncles are reddish, and the flowers a shade of pink. Adjoining these were bunches of Zonal *Pelargoniums*, about 30 varieties in all. The finest scarlet kind in the group was New York. Clevedon is also a good scarlet, but it has an orange sheen. Amongst the white varieties Venus, Goodwood and Snowdrop are to be recommended in this order. Sydney is by far the best light-pink *Pelargonium*. (Silver Banksian Medal.)

Mr. GEO. PRINCE, Longworth, Berks., exhibited Roses in show boxes and vases. Amongst them was a new variety, Mrs. Longworth, a large, globular-formed flower of a pale-pink tint, carried erect on a strong stalk; also the new Rose Mrs. Alfred Westmacott, a pale fawn Tea variety, with an edging of pink, and of the favourite filbert shape. White Killarney is a loosely-built flower, about 4 inches in diameter when fully developed. Other notable kinds were Mrs. A. Waddell, a flower of an orange colour, having a reddish tinge, and filbert shape until fully expanded; Fortune's Yellow, shown in considerable numbers, and Molly Sharnan Crawford, a white Tea Rose. (Silver-gilt Banksian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, showed the new Rose Juliet, a large bloom of a deep pink colour, having a tinge of orange on the reverse of the petals; the flower is very full. The parents are Soleil d'Or and Captain Hayward. The seedling has much vigour, and the stalks carry the flowers erect, without artificial support.

Messrs. GEORGE MOUNT & SONS, LTD., Canterbury, made a beautiful exhibit with Roses, the object being to display the new variety named

after Lady Hillingdon. There were five large banks of this kind, shown in the bud stage, the deep apricot-yellow being very effective. The others were mainly red kinds, such as Liberty and Richmond. (Silver Banksian Medal.)

Messrs. GILL & SONS, Penryn and Falmouth, were exhibitors of trusses of *Rhododendrons* cut from plants growing in the open ground and unprotected. Many were of the arboreum section, and possessed large trusses and flowers. Conspicuous amongst these blooms were flowers of *Camellia reticulata* 7 inches across. (Silver Banksian Medal.)

Mr. J. DOUGLAS, Edenside, Great Bookham, Surrey, showed 40 plants of *Auricula*, including selfs, white-edged, and green-edged varieties, and all of them of fine quality. A purple self, with a large, bold centre of white, received an Award of Merit (see Awards).

Messrs. R. WALLACE & CO., Kilnfield Nurseries, Colchester, staged a fine collection of Alpine species, the beautiful *Primula* named after Mrs. J. H. Wilson being conspicuous at one end of the group. There were several *Fritillarias*, including the climbing *F. Thunbergii*, the upper leaves having their tips modified as tendrils; the flowers are greenish-yellow. The brightest-flowered was *F. recurva*, the colour being orange-red on a yellow ground. *Aubrietia Perkinsii* was showy, also *Viola gracilis*, and near these was a fine pan of *Shortia galacifolia*. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, exhibited miscellaneous hardy-flowering plants. Especially fine was *Anemone pulsatilla*; also *Primulas* in variety, Himalayan *Rhododendrons*, and *Narcissi* of several sections. (Silver Banksian Medal.)

The GUILDFORD HARDY PLANT CO. showed hardy *Ericas*, *Veronicas*, *Mertensia virginica*, *Andromeda floribunda*, and other rock plants.

Messrs. GILBERT & SON, Anemone Nurseries, Dyke, Bourne, Lincolnshire, exhibited *Anemones*, such as *A. pulsatilla*, King of Scarlets, and St. Brigid.

Messrs. JOHN PEED & SON, West Norwood, showed hardy subjects in pots, chiefly rock plants, as *Primulas*, *Auriculas*, *Ericas*, *Cereus*, *Aloes*, and other succulents.

The Misses HOPKINS, Mere Gardens, Shepperton-on-Thames, showed a bright group of *Primroses*, *Daisies*, *Anemones*, *Trilliums*, and other spring-flowering plants.

Messrs. BARR & SONS, King Street, Covent Garden, showed a number of Alpine plants in boxes, with a setting of bulbous flowers, May-flowering *Tulips* and *Narcissi* being a feature.

Messrs. G. JACKMAN & SON, Chard, exhibited *Rhododendron hybridum* Jackmanii, *Genistas*, *Spiræa arguta*, species of *Primula*, *Scilla*, *Anemone calyculata*, *Trillium*, and other Alpines.

Messrs. BAKERS, Wolverhampton, showed a beautiful stand of *Violas*, among which we noted Kitty Hay, Lizzie Paul, Isolde, Kingcup (all yellow kinds), Lady Carlisle and Swan (white), Mrs. W. Kern and Rosy Morn (both purple), Picotee (a white-edged purple), Mr. Chichester (blue with a white centre), and J. S. Baker (a bright purple variety).

Messrs. CARTER PAGE & CO., London Wall, showed Pansies of their giant strain in many colours, the large, circular blooms having bold, clear markings. There were also some delightful bunches of annuals, the magnificent blue of *Nemophila insignis* and the darker *N. atomaria* showing up prominently. *Linaria maroccana*, *Limnanthes Douglasii*, and *Nemesia strumosa* were also noticed.

Messrs. HEATH & SON, Cheltenham, showed Alpine plants on a bank of rockwork. There were colonies of Grape Hyacinths, *Primulas*, *Corydalis bulbosa*, *Arabis*, and other spring flowers.

Messrs. THOS. S. WARE, LTD., Feltham, put up a rockwork exhibit arranged with Alpine plants in variety.

Captain DORRIEN SMITH showed a number of interesting photographs representing the flora of the Chatham Islands.

AWARD OF MERIT.

Auricula Phyllis Douglas.—This is, perhaps, the finest Alpine *Auricula* Mr. DOUGLAS has ever raised. In size, form and colour the flower is equally satisfactory. The colour is very rich purple with lighter edges and the centre white. Shown by Mr. JAMES DOUGLAS.

Lonicera pileata.—This species was introduced for Messrs. Jas. Veitch & Sons by Mr. Wilson, about 1901, from Central China, having previously been discovered by Mr. A. Henry near Ichang. It is an evergreen (or, in severe winters, semi-evergreen) shrub of neat, bushy appearance, the branches often taking a horizontal direction. The plant is of special interest, being the only hardy, evergreen, bush Honeysuckle in cultivation. The habit of the plant, together with its neat, lustrous green, small leaves are strongly suggestive of one of the dwarf Cotoneasters. The flowers are yellowish white with the twin arrangement characteristic of the bush Honeysuckles. The fruit is red, and we learn that plants have fruited in Ireland and that they proved attractive. The shrub is very easily propagated by cuttings of moderately-ripened wood, placed in gentle heat. It would apparently make a very pleasing, low evergreen covering for sloping banks, &c. It is perfectly hardy in the London district. Shown by Messrs. PAUL & SON, The Old Nurseries, Cheshunt.

Strain of Cineraria.—An Award of Merit was granted to a strain of dwarf-flowered Cineraria shown by Messrs. JAS. VEITCH & SONS. There were six varieties, and all showed the habit characteristic of the variety "Feltham Beauty."

Narcissus Committee.

Present: H. B. May, Esq. (Chairman), and Messrs. G. W. Leach, J. Pope, Robert Sydenham, Charles T. Digby, W. W. Foster, F. H. Chapman, W. A. Milner, J. Walker, W. Poupart, J. T. Bennett-Poë, P. D. Williams, E. M. Crosfield, J. Jacob, E. Willmott, H. Backhouse, A. R. Goodwin, J. D. Pearson, R. W. Wallace, C. Bourne, H. A. Denison, E. A. Bowles, and Charles T. Curtis (secretary).

There was a good display of Narcissus, some of the exhibits being from Ireland and Guernsey. A large number of the flowers had been grown either in glasshouses or frames, which enable the cultivator to develop the best exhibition blooms and much finer than by open-air cultivation.

A notable exhibit was presented by Mr. ALEX. M. WILSON, Bridgwater, Somerset, and for which a Gold Medal was awarded. The collection embraced a remarkable selection of giant forms of Leedsii, in white and bicolor flowers; magnificent trumpet Daffodils, the red-cupped section and the finest Poeticus varieties being shown splendidly. Those of the named sorts that appealed most strongly to us were Conqueror, bicolor Ajax, Empire (a white and cream giant Leedsii, Michael (apparently raised from King Alfred), Inglescombe (which might well be said to reach the highest excellence in a double lemon-yellow Incomparabilis), Cossack, and Gadfly (both of the Engleheartii type, with richly-coloured crowns). Tennyson and Ibis are two of the finest of the Poeticus race in the group. There were also some fine Poetaz varieties.

Messrs. BARR & SONS, King Street, Covent Garden, displayed a particularly fine collection, and amongst a very choice assortment we noted Bedouin medio red-cup; Seraphine, a fine pale Ajax, of very large proportions; Homespun; Red Chief; Peter Barr; Gadfly, with a fiery crown; Loveliness; White Ajax; Jaspas, of the Engleheartii type, with a brilliant crown; and Mermaid, a giant white Leedsii. Buttercup is a gem among the self-yellow Daffodils. (Silver Flora Medal.)

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, showed some superb flowers, presented in the highest degree of perfection. Of the more conspicuous we remarked the rich yellow Ajax Rising Sun; Bard of Avon, a handsome Poeticus variety; Master of Balliol, a fine yellow Ajax kind; Southern Star, with a bright cup; Sailor; Homespun; Mme. de Graaff; King Alfred, and many other well known varieties. (Silver Flora Medal.)

Messrs. JAMES CARTER & Co., High Holborn, London, again made a garden scene, representing border, grass plot, and flower beds, with dripping pool and water basin. The background was planted with Cedars, and a bank in front was planted with magnificent plants of Narcissus King Alfred. Very fine also was a bed of Hyacinth Leonidas, and the corresponding bed of the white Alba grandiflora. There were also Tulips, and the water was planted about with Alpines. (Silver Banksian Medal.)

Mr. J. A. COOPER, Lissadel Bulb Farm, Sligo, also received a Silver Flora Medal for a choice collection of these flowers, of which Glory of Leiden, Incognita (with red cup), the giant yellow Ajax kind Sir Horace Plunkett, Lissadel (a seedling, resembling apricot in the colour of its crown), King Alfred, Muriel, and Cassandra were amongst the finest in the group.

Mr. JOHN POPE, King's Norton, Worcester-shire, had a small group, in which Estelle, Sur-

Mr. F. LILLEY, Guernsey, had a somewhat extensive collection of good commercial varieties of Narcissi, of which Lucifer, King Alfred, Firebrand, Oriflame, and Rev. Charles Digby were a few of the more conspicuous. (Bronze Banksian Medal.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.),

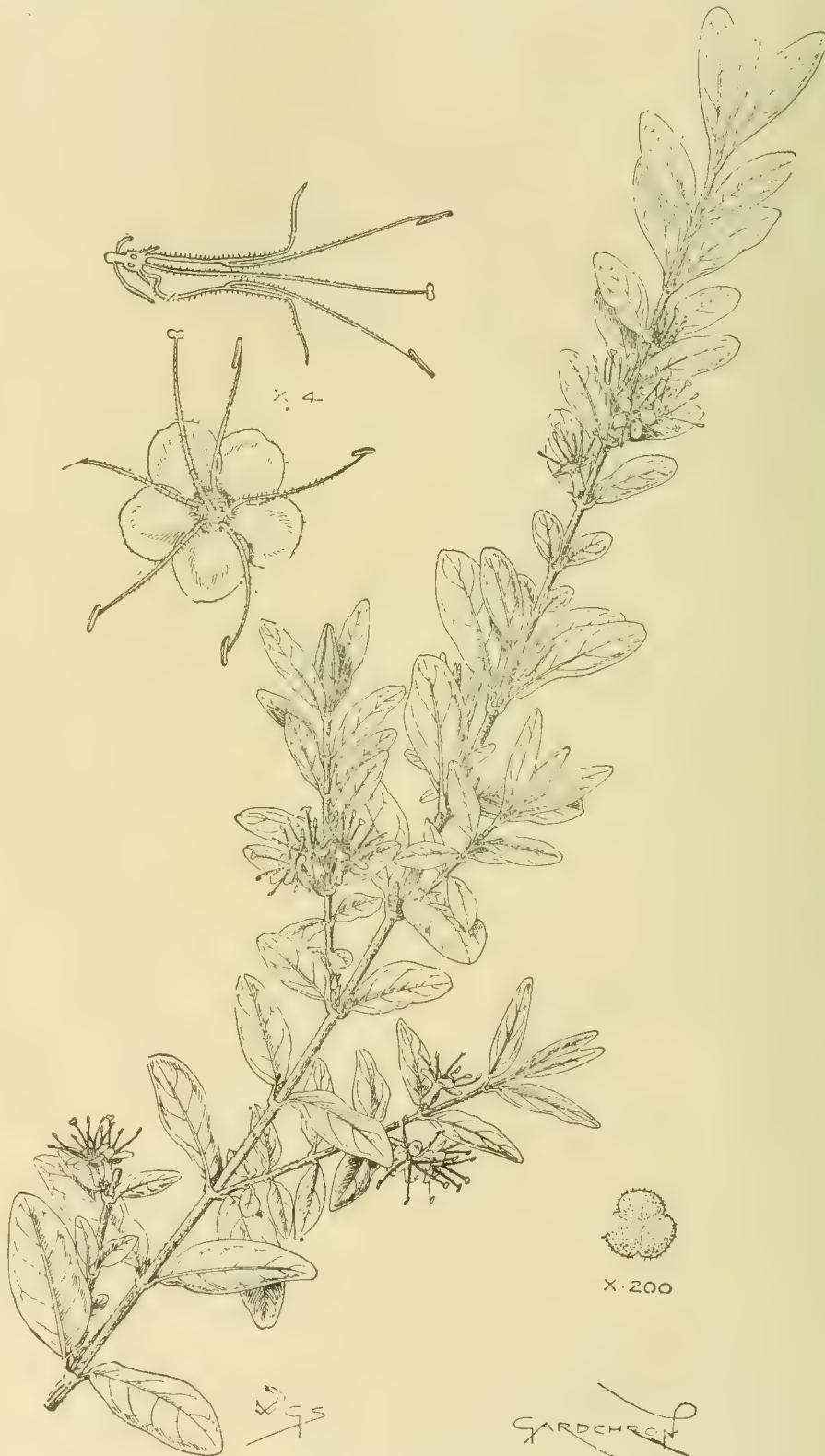


FIG. 102.—*LONICERA PILEATA*.
(Received an Award of Merit on Tuesday last.)

prise, and King's Norton stood out conspicuously.

Messrs. R. H. BATH & Co., LTD., Wisbech, contributed cut Daffodils and Tulips in great variety, a margin to the group being formed by Chionodoxas and Squills. (Bronze Banksian Medal.)

Harry J. Veitch, W. Boxall, A. Dye, W. H. Hatcher, W. H. White, H. A. Tracy, H. Ballantine, H. G. Alexander, J. Charlesworth, Gurney Wilson, J. Wilson Potter, W. Bolton, H. Little, Stuart Low, F. J. Hanbury, Walter Cobb, and de B. Crawshaw.

H. S. GOODSON, Esq., Fairlawn, West Hill,

Putney (gr. Mr. G. E. Day), was awarded the Society's Gold Medal for a group rich in good things and especially in blotched and hybrid *Odontoglossums* and scarlet *Odontiodas*, two of which secured awards. Others noted were *Odontoglossum Frederickii*, *O. percultum* Fairlawn variety, *Odontioda Vuylstekeæ* and the lighter variety *Albion*; good scarlet *Odontoglossum Bradshawia*, *O. Cravenianum*, *O. Ernestii* (a fine flower, probably a *Wilckeanum* cross), some richly-coloured *O. ardentissimum*, *O. amabile*, and *O. eximium*. The back of the group was formed of handsome hybrid *Phaius*, with *Cymbidiums*, *Dendrobiums*, and *Odontoglossums*. In the middle were arrangements of white *Cattleyas*, including many *C. intermedia* alba and nivea, *C. Dusseldorfei* Undine, *C. Susanne Hye de Crom*, the very beautiful *C. Schröderæ* Queen Alexandra, *Brasso-Cattleya* Mme. Chas. Maron, and other *Brasso-Cattleyas*, *Sophræ-Lælias*, &c.

Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed a selection of beautiful and splendidly-grown Orchids, among which the handsome *Odontoglossum Pescatorei* Westonbirt variety, a large, slightly-spotted flower, having an eight-branched spike of 45 flowers, secured a well-merited Cultural Commendation; and the fine *Lycaste Skinneri* hellemensis a First-class Certificate (see Awards). The others were *Odontoglossum amabile* Westonbirt variety, *O. ardentissimum* Westonbirt variety, both large and finely blotched, and *Cattleya Apelles* (Mendelii × Whitei), a large, rose-coloured flower of fine shape.

Sir FREDERICK LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White), showed an interesting selection of curious Orchids, for some of which see Awards. Others noted were a fine specimen of *Cirrhopetalum Cumingii*, with 16 heads of deep-rose flowers (Cultural Commendation); *Epidendrum variegatum*, a singular species with upright spikes of brownish flowers; *Dendrobium Clio*, and *Odontoglossum Rossii* roseum.

J. GURNEY FOWLER, Esq., Glebe lands, South Woodford (gr. Mr. J. Davis), showed a very good blotched form of *Odontoglossum crispum*, and the pretty pink-tinted *O. ardentissimum* Starlight, with the segments bearing a number of small rose spots.

F. MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed 11 finely-grown plants of the deep-yellow *Veitchian* form of *Dendrobium Thwaitesiae*, which received a First-class Certificate when first shown.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), staged an interesting group, at the back of which were several of the Gatton Park variety of *Phaius Norman*, all very beautiful; a splendid deep-scarlet variety of *Odontioda Bradshawia*, raised at Gatton; the rare, large, white *Maxillaria Lindenii*, *Cœlogyne Sanderæ*, *Warszewiczella discolor*, a new white hybrid *Dendrobium*, and the curious little *Panisea apiculata* were also in the group.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Silver-gilt Flora Medal for an extensive and well-arranged group, the ends of which were of hybrid *Dendrobiums*, and varieties of *D. nobile*, among which the pure white variety, and a new seedling named *D. nobile Armstrongiæ*, with fine, white flowers with deep-purple disc to the lip, were conspicuous. The centre was of handsome *Odontoglossums*, *Cymbidiums*, &c., and in the lower spaces good selections of *Cypripediums* and various rare species, among which the plant of *Odontoglossum crispum* Solum, with its clear, white sepals and petals and deep-purple lip was a fine object. Other plants noted were *Dendrobium Harveyanum*, *Lycaste Lawrenceana gigantea*, *Odontoglossum eximium* var., with light-violet flowers; *Lælia Gwennie*, pale yellow; *Lælia-Cattleya Wilsonii* (L. Jongheana × C. Hardyana); and some brilliant scarlet *Sophræ-nitis*.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for an effective group of fine hybrid *Odontoglossums*, *Odontiodas*, &c. One of the best novelties was *Sophræ-Lælia-Cattleya* Hon. Barbara Wilson, a pretty flower of a glowing, rosy-mauve colour, with orange base to the lip. The varieties of *Odontoglossum ardentissimum*, *Odontioda Bradshawia*, *O. Cassiope*, *O. Diana*, *O. Vuylstekeæ*, and others gave charming colours. Others noted were the true *Masdevallia Winniana*, *Angræcum*

citratum, *Odontoglossum coronarium* miniatum, *Lycaste Skinneri* exquisita, *Zygopetalum*, *Perrenoudii*, and some pretty unnamed hybrids.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an excellent group, in which the principal plants were a noble variety of *Phalenopsis casta* named *superbissima* (see Awards), a good selection of fine, scarlet *Odontiodas*, a large blue *Vanda cœrulea*, a new white *Sobralia* different in shape to *S. macrantha* alba and of thicker substance, imported from Ecuador. Among the showy hybrid *Odontoglossums*, *O. Regale* (ardentissimum × Lawrenceanum) was very distinct and showy, its pale-yellow flowers being heavily blotched with chocolate-purple, contrasting well with the white lip bearing some dark spots around the yellow crest; *O. percultum* ampliatus, silver-white blotched over the greater part of its surface with reddish-violet; a large and handsome *O. excellens*; and *O. blandum-nobile*, a neat flower, though not large. Others remarked were *Brasso-Lælia Clio* (L. cinnabarina × B. glauca), yellow-tinted, and veined with rose; *Dendrobium albosanguineum* and other showy *Dendrobiums*, *Oncidium O'Brienianum*, *Lælia-Cattleya callistoglossa* excellens, and other *Lælia-Cattleyas*.

Messrs. STUART LOW & Co., Bush Hill Park, secured a Silver Banksian Medal for an effective group of good *Cattleya Schröderæ*, various *Dendrobiums*, including their dwarf, free-flowering form of *D. Jamesianum*, *Cymbidium eburneo-Lewianum* concolor, some well-flowered *Odontoglossums*, including the pale yellow *O. sceptrum* Masereelianum, and good spotted *O. crispum*; a very dark *Cymbidium Lowgrinum*; *Cirrhopetalum Mastersianum*, with its pretty, coppery-orange flowers; *Cypripedium Drurii*; *Angræcum Leonis*; *Bulbophyllum cupreum*; the pretty, yellow *Lælia-Cattleya Gold Crest*, &c.

Mr. E. V. LOW, Vale Bridge, Haywards Heath, showed a fine selection of *Dendrobiums*, including *xanthocentrum*, *Sibyl*, *Luna*, *Thwaitesiae*, *Pallas*, &c.; *Epidendrum Delphii* (O'Brienianum × Schomburgkii), with heads of well-rounded, blood-red flowers; the purple *Odontoglossum Groganii*; *Cattleya Schröderæ* alba; and the beautiful white-petalled *C. Ludemanniana Stanleyi*; *Brasso-Cattleya Digbyano-Schröderæ*, the elegant *Cirrhopetalum Makoyanum*, with umbels of yellow flowers, speckled with rose; a pretty spotted *Odontoglossum crispum*, &c.

Mr. A. W. JENSEN, Lindfield, staged a small group of fine varieties of *Cattleya Mendelii*, *Odontoglossum crispum*, *O. triumphans*, &c.

Mrs. TEMPLE, Leyswood, Groombridge (gr. Mr. Bristow), sent *Lælia-Cattleya* Mrs. Temple (C. Mossiæ × L.-C. Hy. Greenwood), a large, rose-coloured flower.

Mr. GURNEY WILSON, Haywards Heath, showed *Sophræ-Lælia-Cattleya Bletchleyflora* (L.-C. Bletchleyensis × S. grandiflora), a fine, rich scarlet hybrid.

AWARDS.

FIRST-CLASS CERTIFICATES.

Lycaste Skinneri hellemensis, from Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander). Probably the finest-coloured *Lycaste*, the flowers being large, finely formed, and of a deep-rose tint, a little white showing at the backs of the petals. The lip is white, spotted with purple.

Phalenopsis casta superbissima, from Messrs. SANDER & SONS, St. Albans. A grand variety of this fine natural hybrid. Foliage resembling *P. Schilleriana*. Flowers large, well-rounded, white, with a delicate pink flush, and some effective spotting at the base of the lip.

Odontoglossum ardentissimum "Norman Cookson," from Mrs. N. C. COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman). A grand variety, and much improved since last shown, when it received an Award of Merit. The flowers are as large as a good *O. crispum*, the segments all equally broad, deep claret-purple, with silver-white margins and tips. It is difficult to imagine a more beautiful *Odontoglossum* in its section.

AWARDS OF MERIT.

Odontioda Goodsoniæ, from H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day). The pretty hybrid illustrated in the *Gardeners' Chronicle*, March 27, 1909, p. 195, the suggested parentage being given as *Cochlidia Noezliana* × *Odontoglossum ardentissimum*, white or sparsely-spotted variety. Flowers scarlet, with white markings.

Odontoglossum Ceres Goodson's variety (Rossii × Rolfeæ), from H. S. GOODSON, Esq. Flowers resembling *O. Rossii*, but with broad, white labellum.

Sophræ-Lælia-Cattleya Hon. Barbara Wilson (*S.-L. heatonensis* × *C. Fabia*).—Flowers bright rosy-mauve on orange ground colour, the front of the lip ruby-red and the base orange.

BOTANICAL CERTIFICATES.

Megaclinium triste, from Sir TREVOR LAWRENCE, Bart. A curious species from tropical Africa, with dark purplish flowers.

Megaclinium fuscum, from Sir TREVOR LAWRENCE. Inflorescence with a flattened blade, dark purple, spotted with white, and bearing a row of brownish-purple flowers on each side.

Pleurothallis tridentata, from Mr. GURNEY WILSON. A dwarf, tufted plant, with brownish leaves, and small, greenish flowers.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair), and Messrs. C. G. A. Nix, F. Perkins, A. Dean, E. Beckett, H. Parr, W. Fyfe, G. Kelf, J. Davis, P. D. Tuckett, W. Barnes, J. Jaques, P. C. M. Veitch, C. Foster, J. Harrison, W. Poupart, and O. Thomas.

On the proposition of the Chairman, seconded by Mr. E. Beckett, the Committee passed a vote of sympathy with the relatives of the late Mr. W. Denning, a former member.

A dish of medium-sized fruits of Apple Court Pendu-Plat was shown by Mrs. TROTTER, Dyrham Park, Barnet, to show its keeping qualities.

Mr. W. CRUMP sent from Madresfield Court Gardens, Malvern, good samples of Apples Edward VII. and the American Wagener, both cooking varieties. The first-named has already been given an Award of Merit. It was decided that fruits of Wagener and another Apple from Rhodesia should be cooked and submitted to the Committee at the next meeting. A Silver Banksian Medal was awarded to the Rhodesian Apple, which was shown by F. C. WIENHOLT, Esq., Rhodes Farm, Rhodesia.

Mr. W. POUPART, Twickenham, sent samples of four varieties of Rhubarb, to show their general growth in the open ground in relation to earliness. The three best were Dawe's Champion, Hawke's Champagne, and the Sutton, there being very little difference in these three. The other was Dawe's Challenge, the stem of which did not exceed 4 inches. It was understood that the superintendent, Mr. S. T. WRIGHT, would exhibit a collection of Rhubarbs from established roots growing at Wisley, at the next meeting.

The Earl of CLARENDON, The Grove, Watford (gr. Mr. E. Harris), showed a group of a white Cabbage Lettuce of the Leyden White Dutch type, grown in a cold frame, the seed having been sown on January 12 last.

From the TIMES EXPERIMENTAL STATION, Sutton Green, Surrey, Mr. C. FOSTER showed a fine sample of blanched Witloof Chicory, which had been grown in the open field, and blanched with the natural soil heaped over the crowns. The growths were about 7 inches in length, very solid, and white. (Cultural Commendation.)

Messrs. SUTTON & SONS, Reading, staged 100 heads of their small, and remarkably-early Cabbage Harbinger, which is a selection from the variety April, but the heads are smaller and some three weeks earlier. These were shown set up on end, in two large trays, and were ideal samples of first early spring Cabbages. To this variety a Cultural Commendation was awarded. Although they were grown in an open garden, without special treatment, it was desired that the variety be tested at Wisley next winter. Baskets of April Cabbages were also staged, but these were later.

INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

At a largely-attended meeting in the Lecture Room of the Royal Horticultural Society on Tuesday last, the proposals for an International Horticultural Exhibition in 1912 took definite shape. Most of the members of the council of the R.H. Society were present, and the president, Sir Trevor Lawrence, occupied the chair. After pointing out the great advance that had been made in horticulture generally, and in this country in particular, since the last great exhibition in 1866, and referring to the hospitality which British horticulturists had received in France, Germany,

Italy, Belgium and Holland in recent years at such exhibitions in those countries, he moved "that this public meeting is of opinion that it is desirable to hold an International Exhibition in May and June, 1912." Sir Trevor said that the first thing necessary was the formation of a guarantee fund, and to this the R.H.S. is prepared to make a liberal contribution. Judging from the 1866 exhibition, he did not anticipate the guarantors would be called upon to contribute. In 1866 there was a profit of about £3,500, and, comparing the prospects of the 1912 venture with that of 1866, he thought that it was likely to be even more successful. He said it is not intended that the R.H.S. should take possession of the scheme, their object was only to properly launch it. They had compiled a preliminary list for a general committee, including many liberal patrons of gardening. These ladies and gentlemen would be invited to act, but the committee would have power to add to its number.

Sir Albert Rolitt, chairman of the National Chrysanthemum Society, seconded the resolution, which was carried unanimously. This speaker said that such an exhibition would result in materially improving Britain's commercial and trade influence, and it would have the higher value which the moral effect of the cultivation of flowers always has upon the people.

Sir Trevor Lawrence, Bt., said that Englishmen loved their gardens, and from what he knew of the horticulture of the United Kingdom, such an exhibition as the Committee had decided to promote would surpass anything that had ever been seen. Mr. Edward White has agreed to act as the secretary *pro tem*. In reply to Mr. Alexander Dean, the President said that, for the present, the offices of the R.H.S. would be at the services of the management committee.

LINNEAN SOCIETY.

MARCH 17.—Dr. HARRY DRINKWATER showed specimens of drawings in distemper on coloured paper of wild flowers growing at Wrexham; his object was to draw every plant in the local flora natural size, and he had completed 300, leaving about 500 still to be drawn.

Dr. OTTO STAPF, F.R.S., Sec.L.S., on behalf of the Director, Royal Botanic Gardens, Kew, exhibited specimens of *Eysenhardtia amorphoides*, H. B. & K., and demonstrated the exquisite fluorescence of the infusion of the wood of the plant (as described by him in the *Kew Bulletin*, 1907, No. 7, pp. 293-305) by the aid of the electric arc-light of the optical lantern.

THE SOY BEAN.

Mr. J. H. HOLLAND, F.L.S., also on behalf of the Director of Kew, showed samples of Soy Bean, *Glycine Soja*, Sieb. and Zucc. (*G. hispida*, Maxim.), with herbarium species of the plant producing this seed.

He stated that the seeds of "Soy," of which there are many varieties, may be black, brown, green or greenish-yellow, yellow, or mottled; sometimes seeds are described as white, but there appears to be no Soy Bean true white in colour.

The plant is variously known as "Soy," "Soja," "Soya," "White Gram," "American Coffee Berry," and "China Bean."

In China and Japan, where the plant has been cultivated for many years—perhaps centuries—the Beans are an important food, and they are also said to be used as a substitute for Coffee, Bean Cake and the sauce known commercially as "Soy" is also made from them. It is stated that in the manufacture of the Soy of Commerce, in addition to the Beans, the requirements are simply a large amount of salt and flour, and an unlimited supply of fresh water. Wenchow is an important centre of the manufacture, and here the Bean used for the purpose is said to be chiefly the white form from Chinkiang.

The cultivation has been extended to India, Africa, and other warm countries, and in America the plant has been grown for a number of years (25 at least) as a forage crop. Like many other leguminous plants, it has a special value as a green manure.

The principal use of the Beans in this country is for the extraction of the oil, of which they contain about 18 per cent. suitable for soap-making, and in general as a substitute for cotton-seed oil. The residue, after the extraction of oil, is suitable for feeding cattle, and for this purpose

appears likely to become a serious competitor of Cotton-seed cakes, Sunflower-seed cakes, Linseed cakes, &c. The Beans can be bought in London at about £5 to £6 per ton; the oil realises about £21 to £22 per ton, and the cake about £6 to £7 per ton.

Beans and Bean-cake exported from China have gone chiefly to Japan, and certain parts of Asia, but recently, beginning about November, 1908, an important trade has been developed in them, more especially with the Beans, between Manchuria and Europe, Dairen (Dalny) being the chief place of export.

The cause of this sudden development may, perhaps, be attributed to the facts that a great increase in the cultivation took place in Manchuria during the Russo-Japanese war, to meet the demands for food of the Russian Army; then, when the troops were withdrawn, the production being found profitable, and the home demand reduced, other markets were sought. The trade extended to Japan, and afterwards, assisted perhaps by a period of depression in that country, it extended to Europe, where the industry has created interest in many quarters.

The amount of the 1908 crop sent to Europe through Vladivostok up to July, 1909, was 180,000 tons, the greater part destined for the English market (Hull and Liverpool), and the remainder going to German (Hamburg) and Scandinavian ports.

Up to 1907 the export of Soy Beans from Manchuria did not exceed 120,000 tons annually. During 1908 the export rose to 330,000 tons (one-half shipped from Dairen; 100,000 tons from Newchang, and 65,000 tons by rail via Suifenhö to Vladivostok), the increase it is said being due entirely to the demand from Europe. The total of the 1909 crop exported has been estimated at about 700,000 to 800,000 tons. It is anticipated that at present prices Europe may eventually take at least 1,000,000 tons annually.

Mr. Craib, Mr. Bunzo Hayata (from Tokyo), and Dr. Stapf gave further details, and Mr. Holland replied. He also brought for exhibition a series of 17 photographs, showing the methods now used to bring Teak (*Tectona grandis*, Linn. f.), from the Burma forests to the shipping ports.

The first paper was by Mr. E. P. Stebbing, F.L.S., "On the Life History of *Chermes himalayensis* on the Spruce (*Picea Morinda*) and Silver Fir (*Abies Webbiana*) of the N.W. Himalaya," of which the following is an abstract:—

"The life histories of the European species of *Chermes*, *C. abietis* and *C. viridis*, have been studied by Blochmann and L. Dreyfus in Germany, Chodolovsky in Russia, and more recently by E. R. Burdon of Cambridge. It is now well known that *C. viridis* has alternating series of generations upon the Spruce and Larch. The discovery that a species of *Chermes* formed galls on the Spruce in the Himalaya was first reported by A. Smythies, of the Indian Foreign Service, in 1892. These were considered by the late Mr. Buckton to be *Chermes abietis*. Investigations commenced by the author in May, 1901, and carried on intermittently up to July, 1909, have led to the discovery that this *Chermes*, although an undescribed species, has a life history somewhat similar to the European species of the genus, having series of agamic generations alternating between the Spruce and Silver Fir (which grow together in mixture in the Western Himalaya), with a sexual generation occurring but once a year, in the autumn, on the Spruce."

The paper shows that the Himalayan insect passes through similar generations to its European congeners to which the names *Fundatrices*, *Alatae*, *Colonicæ*, *Sexuparæ*, and *Sexuales* have already been given by European investigators. The periods at which these generations are to be found upon the trees in the Himalaya differ considerably, however, from the European ones, and are apparently chiefly governed by the appearance of the monsoon early in July in this region. The life history is apparently so closely dependent upon the climatic conditions of the locality, that further close investigations are required to establish definitely the period of appearance of the sexual generation.

Coming to the question of the damage committed by the insect in the forest, the paper points out that this is undoubtedly of a serious nature. In the case of the Spruce, young trees are often seen loaded with galls, as many as 80 per cent. of the branches bearing, at times, several cones apiece upon them. Each gall means the destruction of a bud or future branch.

In the Silver Fir also, the growth of young trees is seemingly impeded, owing to the method of feeding of the second generation of the *Colonicæ* (the *Exules* and *Sexuparæ*). This results in a curious twisting and contortion of the upper portions of the new shoots, the needles on the upper half twisting round one another tightly, forming a loose kind of gall-like structure, which subsequently withers and drops off. As many as 90 per cent. of the new shoots of young trees have been observed to be corkscrewed and killed in this manner.

The President commented on the extreme interest of these observations, and the beauty of the coloured drawings by Mrs. Stebbing.

NURSERY AND SEED TRADE.

APRIL 1.—The annual general meeting was held at 32, Gresham Street, London, on this date. Mr. H. Simpson, of Messrs. Cooper, Taber & Co., Ltd., occupied the chair.

The report and balance-sheet for 1909 were submitted; these showed that the membership had increased and the financial position improved. Debts amounting to over £5,000 had been collected for members during the year by the Association, and assistance had been rendered to them in obtaining status information respecting the solvency of intending customers who were seeking credit; also in tracing debtors.

Mr. N. N. Sherwood was re-elected president of the Association. The other officers were also appointed, Mr. H. Simpson and Mr. G. H. Barr being re-elected trustees, and Mr. Henry W. W. Nutting treasurer, in the place of Mr. W. J. Nutting, who has served as a member of the committee for more than 30 years, and as treasurer for the past 18 years.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending April 6th.

No rain for sixteen days.—There was one rather warm day, but with this exception both the days and nights during the past week remained cold. On the coldest night the exposed thermometer registered 14° of frost, the coldest night since February 5, or for eight weeks. During the last 25 nights there have been only two which have been above the average in temperature. On the other hand, in the same period, the days were, as a rule, rather warm. The ground has now become cold, being 1° colder at 2 feet deep, and 3° colder at 1 foot deep, than is seasonable. Rain fell on the last two days, to the total depth of about a quarter of an inch; but previous to this there was what meteorologists term an "absolute drought," lasting 16 days. There was no measurable percolation through either gauge until after this rain, but since then small quantities of rain-water have come through both of them. The sun shone on an average for 5½ hours a day, or for 1½ hours a day longer than is usual at the beginning of April. Light airs and calms have alone prevailed during the week, the direction being principally from some northerly point of the compass. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by three per cent.

MARCH.

Rather warm, very dry, and exceptionally calm and sunny.—Taking the month as a whole it proved a rather warm March. The days were nearly all warm and also the first 12 nights, but after that time there were only two nights on which the temperature was above the average. It was a month of fairly equable temperature. On the warmest day the highest reading in the thermometer screen was only 57°, and on the coldest night the exposed thermometer registered only 13° of frost, both of which are unusually moderate extreme readings for the month. Rain or snow fell on only 10 days and to the aggregate depth of but 1½ inch, which is three-quarters of an inch below the March average. This was the driest March for 10 years. Snow fell on only one day, when for a short time in the evening the ground was covered with it. One of the most noteworthy features of this March was a drought lasting from the 18th to the end of the month, or for 13 days. The sun shone on an average for five hours a day, or for as much as 1½ hours a day longer than is usual in March. This was the calmest March with one exception during the 24 years over which my observations at Berkhamstead extend, and the mean velocity for the windiest hour only amounted to 15 miles—direction W.S.W. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by four per cent.

OUR UNDERGROUND WATER SUPPLY.

With March came to an end the winter half of the present drainage year. The total rainfall for those six months exceeded the average quantity by half an inch, which is equivalent to an excess of 13,350 gallons on each acre in this district. At the same time last year there was a deficiency of 111,070 gallons per acre. E. M., Berkhamstead, April 6, 1910.

TRADE NOTICE.

THE CLYDESDALE ORCHARDS, LTD.

The above-named company has been registered with a capital of £2,000 in £1 shares. The objects of the company are to acquire the business of fruit growers, market gardeners and florists, carried on by Alex. H. Brown at Lammas Knowe and Quarry Park, Crossford, Lanarkshire. Private company.

MARKETS.

COVENT GARDEN, April 6.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacia dealbata (mimosas), per doz. bunches...	8 0-10 0		Marguerites, p. dz. bunches white and yellow...	2 0-3 0	
Anemones, p. doz.	1 0-1 6		Mignonette, per dozen bunches...	3 0-4 0	
Azalea, Ghent, per bunch...	0 6-0 9		Narcissus poeticus (Pheasant-eye), per doz. bunches...	1 0-2 0	
— Fielder, p. dz.	2 0-3 0		— Soleil d'Or...	1 0-1 6	
Bouvardia...	4 0-6 0		Odonoglossum crispum, per dozen bunches...	1 0-2 0	
Calla (see Richardia)			Pelargonium, shw., per doz. bunches...	3 0-5 0	
Carnations, p. doz. blooms, best American (var.)...	2 0-3 0		— Zonal, double scarlet...	4 0-6 0	
Carola, and other special varieties...	4 0-5 0		— Richardia africana (Calla), p. doz.	1 6-2 6	
— second size...	1 6-2 0		Roses, 12 blooms, Niphetos...	1 0-2 0	
— smaller, per doz. bunches...	12 0-18 0		— Ruses and...	2 0-3 0	
Camellias, per doz. blooms...	6 0-9 0		— C. Testout...	3 0-4 0	
Catleyas, per doz. blooms...	1 6-3 6		— Kaiserin A. Victoria...	1 0-3 0	
Daffodils, best, per doz. bunches...	1 6-3 6		— Capt. Hayward...	2 6-3 6	
— second size...	1 6-2 0		— C. Mermet...	1 6-2 0	
— double, per doz. bunches...	1 6-2 0		— Liberty...	2 0-4 0	
Eucharis grandiflora, per dozen blooms...	3 0-4 0		— Mine Chatenay...	2 0-5 0	
Freemias, p. dz. bel.	1 0-1 6		— Richmond...	2 0-4 0	
Gardenias, per dz.	1 6-2 6		— The Bride...	2 0-3 0	
Heather (white), per bunch...	1 0-1 0		Spiraea, per doz. bunches...	4 0-6 0	
Lapageria alba, per dozen blooms...	1 6-2 0		Stephanotis, 72 spikes...	2 0-3 0	
Lilac (French), p. bch.	2 0-3 0		Socks, p. dz. bels.	3 0-4 0	
Lilium auratum, per bunch...	2 0-3 0		— Sweet peas, per dozen bunches...	2 0-4 0	
— longifolium...	2 0-3 0		Tuberose, p. gross, per doz. blooms...	4 0-6 0	
— lancifolium rubrum...	2 0-2 6		Tulips, singles, per doz. bunches...	6 0-9 0	
— lancifolium album...	1 6-2 0		— doubles, per doz. bunches...	10 0-15 0	
Lily of the Valley, p. dz. bunches...	6 0-9 0		Violets, p. dz. bels.	1 6-2 0	
— extra quality...	12 0-15 0		— Parma...	1 6-2 6	

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum cuneatum, p. doz. bunches...	6 0-8 0		Ferns (French), per doz. bunches...	0 6-0 9	
Asparagus plumosus, long trails, per doz. bunches...	12 0-18 0		Galax leaves, per doz. bunches...	1 6-2 0	
— medium, doz. bunches...	12 0-18 0		Hardy foliage (various), per dozen bunches...	3 0-9 0	
— Sprengeri...	0 9-1 6		Ivy-leaves, bronze, long trails per bundle...	0 3-1 6	
Berberis, per dozen bunches...	2 6-3 0		— short green, per doz. bunches...	1 6-2 6	
Croton leaves, per dozen bunches...	9 0-12 0		Moss, per gross...	4 0-5 0	
Cycas leaves, each...	1 0-2 0		Myrtle, dz. bels. (English), small-leaved...	4 0-6 0	
Ferns, per dozen bunches (English)...	2 0-3 0		— French...	1 0-1 6	
			Smilax, p. dz. trails...	3 0-4 0	

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacia Drummondii, per dozen...	24 0-30 0		Erica candidissima...	18 0-24 0	
Ampelopsis Veitchii, per dozen...	6 0-8 0		— gracilis, doz...	10 0-15 0	
Aralia Sieboldii, p. dozen...	5 0-8 0		— byemalis...	9 0-15 0	
— larger specimens...	9 0-12 0		— melanthra...	9 0-18 0	
— Moseri...	6 0-8 0		— persoluta alba...	24 0-30 0	
— larger plants...	12 0-18 0		— small plants (various)...	3 0-5 0	
Araucaria excelsa, per dozen...	12 0-30 0		Euonymus, per dz., in pots...	9 0-8 0	
— large plants, each...	3 6-5 0		— from the ground...	3 0-6 0	
Aspidistras, p. dz., green...	15 0-24 0		Ferns, in thimbles, per 100...	8 0-12 0	
— variegated...	30 0-42 0		— in small and large 60's...	12 0-20 0	
Asparagus plumosus, per dozen...	9 0-15 0		— in 48's, per dz.	4 0-6 0	
— Sprengeri...	9 0-12 0		— choicer sorts...	8 0-12 0	
— tenuissimus...	9 0-12 0		— in 32's, per dz.	16 0-18 0	
Azaleas, per doz.	30 0-42 0		Ficus elastica, per dozen...	9 0-12 0	
Begonia Gloire de Lorraine, p. dozen...	12 0-18 0		— repens, per dz.	6 0-8 0	
Boronia heterophylla, per dz.	24 0-30 0		Genistas, per dz.	6 0-9 0	
— megastigma...	18 0-24 0		Givilleas, per dz.	4 0-6 0	
Cinerarias, per doz.	5 0-6 0		Hyalcinths, per dz.	6 0-9 0	
Clematis, per doz.	8 0-9 0		— pots, 3 in a pot...	6 0-9 0	
— in flower...	18 0-24 0		Isoplepis, per dozen...	4 0-6 0	
Cocos Weddelliana, per dozen...	18 0-30 0		Kentia Belmoreana, per dozen...	18 0-24 0	
Croton, per dozen...	18 0-30 0		— Fosteriana, per dozen...	18 0-30 0	
Cyclamen, per doz.	8 0-12 0		Latania borbonica, per dozen...	15 0-21 0	
Cyperus alternifolius, dozen...	4 0-5 0		Lilium longiflorum, per dz.	24 0-36 0	
— laxus, per doz.	4 0-5 0		— lancifolium, p. dozen...	18 0-30 0	
Daffodils, per doz.	4 0-6 0		Lily of the Valley, per dozen...	18 0-30 0	
Dracanas, per doz.	9 0-24 0		Marguerites, white, per dozen...	6 0-9 0	
			— Mignonette, p. doz.	6 0-8 0	
			Selaginella, p. doz.	4 0-6 0	

Plants in Pots, &c.: Average Wholesale Prices (Contd.).

	s.d.	s.d.		s.d.	s.d.
Spiraea japonica, dz.	9 0-12 0		Tulips in boxes of 24 bulbs...	1 6-2 0	
Stocks (Intermediate), per dz.	6 0-10 0		— pots, special...	9 0-12 0	

Fruit: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples (U.S.), per barrel...	24 0-27 0		Grapes (Cape), Hermitage, 10 lbs. to 12 lbs.	6 0-10 0	
— Albemarle Pippin...	32 6-10 0		Lemons, per case: (Messina), selected, 300...	12 0-10 0	
— (Canadian), per barrel...	36 6-10 0		— selected, large...	9 6-10 0	
— Spy...	36 6-10 0		— medium, 360...	8 6-10 0	
— (Nova Scotian), per barrel...	16 0-17 0		— special cases, 330...	8 6-10 0	
— Nonpareil...	16 0-17 0		— boxes, extra quality, 300...	7 0-10 0	
— No. 2...	14 6-15 6		Lyches, per box...	1 6-1 9	
— Starks...	16 0-19 0		Mangoes (Cape), per doz.	4 0-10 0	
— Baldwin...	14 0-17 0		Nuts, Almonds, p. bag...	36 0-42 0	
— Sy...	22 6-10 0		— Brazil, new, per cwt.	45 0-48 0	
— Greening...	14 0-18 0		— Barcelona, per bag...	32 0-34 0	
— Russett...	17 0-20 0		— Cob, per lb.	0 3-0 84 0	
— Fallawater...	18 0-20 0		— Cocanots 100...	10 0-14 0	
— Den Davies...	16 0-17 0		— (Italian), p. bag...	11 0-13 0	
— (California), per case...	11 6-10 0		— chestnuts...	7 6-10 0	
— Newtown Pippin, 4 tiers, selected...	11 6-10 0		Huelva, sack...	7 6-10 0	
— 4 tiers, do.	9 6-10 0		— Palermo Blood...	6 6-7 0	
— 4 tiers, seconds...	8 3-10 0		— (100)...	8 0-9 0	
— 4 tiers, do.	8 0-10 0		— Californian...	11 0-12 0	
— (Oregon), Newtown Pippin, per case...	12 0-18 0		— Navel, box 80...	11 0-12 0	
			— case 36...	11 0-12 0	
			— (112)...	8 0-10 0	
			— Jaffa's, case (144)...	8 0-10 0	
Bananas, bunch:	10 0-10 0		— Denia, per case (420)...	11 0-11 0	
— Doubles...	8 0-10 0		— Selected...	13 6-14 6	
— No. 1...	8 0-10 0		— (420) large...	18 0-18 0	
— Extra...	9 0-11 0		— (714) specials...	11 6-10 0	
— Giant...	9 0-11 0		— (714) selected...	16 6-18 6	
— Red coloured...	4 6-6 0		— Valencia, per case (420)...	11 0-20 0	
— Red Doubles...	8 0-9 0		— Messina Bitters, box (100)...	10 0-10 0	
— Jamaica...	5 0-5 6		— Florida, p. case...	10 0-12 0	
— Loose, per dz.	0 6-1 0		— per box...	1 4-1 6	
Cranberries (American Cape Cod), per case...	7 0-10 0		— Jamaica, p. case...	9 6-10 6	
Custard Apples, p. dozen...	6 0-12 0		— Tangerine, per box...	0 6-0 9	
Dates (Star), cwt.	10 0-10 0		— Seville Sours, per chest...	15 0-16 0	
Grape Fruit, case:	14 0-18 0		Pears (Avocado), per doz.	6 0-12 0	
— 90's...	14 0-18 0		Pear, Beurée Hardy (28, 32)...	4 6-10 0	
— 80's...	14 0-18 0		— Beurée Bosc (24, 28)...	5 0-10 0	
— 64's...	14 0-18 0		— (Australian), p. tray...	4 0-5 0	
— 54's...	14 0-18 0		— Pineapples, each...	2 6-3 6	
Grapes, per lb.:	10 6-10 0		Plum, (Cape), Kelsey...	6 6-8 0	
— Gros Colmar...	2 0-3 6		Strawberries, p. lb. second...	3 0-4 0	
— A quality...	2 0-3 6			1 0-2 0	
— B quality...	1 3-2 6				
— Gros Colmar (Belgian)...	1 3-2 0				
— (Almeria), per barrel...	20 0-25 0				
— p. 12 lb. baskets...	3 0-4 0				
— (Cape), p. box...	4 0-5 0				
— Raisin Blanc, 10 lbs. to 12 lbs.	6 0-10 0				
— 10 lbs. to 24 lbs.	10 6-10 0				

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (Globe), per dozen...	2 0-2 6		Mustard and Cress, per dozen pun.	1 0-10 0	
— Jerusalem, p. sieve...	0 9-1 0		Onions (Dutch), p. bag...	3 0-3 6	
Asparagus, Paris Green, bundle...	4 0-5 0		— (English), bag...	4 0-4 6	
— Spruce...	0 9-1 0		— picking, p. bshl.	7 0-8 0	
— (Dijon)...	2 0-2 6		— Spring, per dz. bunches...	3 0-4 0	
— (Spanish)...	1 3-1 6		— (Valencia), per case...	9 0-10 0	
— (Barcelona)...	1 0-1 2		— Egyptian, bags...	7 0-10 0	
Beans (English and Chan. Islands), per lb.	0 9-1 2		Parsley, p. sieve...	1 6-3 6	
— Broad (French), per pad...	4 0-5 0		Parsnips, per bag...	1 6-2 0	
— (Madeira), per basket (6 to 8 lbs.)...	2 6-3 6		Peas (French), pad...	3 0-5 0	
Beetroot, per bushel...	1 6-2 0		— (Jersey) per lb.	2 3-2 9	
Cabbages, p. tally...	2 6-10 0		Potatoes (Algerian), cwt.	14 0-16 0	
Cardoons (French), per dozen...	8 0-10 0		— (Channel Islands), per lb.	0 4-0 6	
Carrots (English), dozen bunches...	2 6-3 6		— (Teneriffe), per cwt.	10 0-15 0	
— per bag...	3 6-4 0		Rhubarb (forced), doz. bundles...	10-1 3	
— unwhashed...	1 6-1 9		— Natural, per tally...	5 6-6 6	
Cauliflowers, tally...	6 0-8 0		Radishes (Guernsey), per dozen...	0 8-0 9	
— (French), per crate (24-30)...	4 0-5 0		Savoy, per tally...	4 0-7 4	
Celeriac, per doz.	1 6-2 6		Seakale...	1 0-1 4	
Chicory, per lb.	0 2-0 3		Spinach, p. sieve...	2 6-3 0	
Cucumbers, per dz.	1 6-4 0		— (French), crate...	2 0-2 6	
Endive, per dozen...	2 0-2 3		Sprouts, p. sieve...	1 0-1 3	
Horseradish, foreign, new, per bundle...	1 0-1 3		— per bag, 28 lbs.	1 3-2 6	
— 12 bundles...	12 0-15 0		Sprouting Broccoli, bag...	1 3-1 9	
— 10 bundles...	1 0-1 6		Stachys tuberosa, per lb.	0 4-0 5	
Lettuce (French), per dozen...	1 0-1 3		Tomatoes...	11 0-12 0	
— (Cos), per doz.	3 6-5 6		— (Teneriffe), per bundle...	11 0-12 0	
Marrows (Madeira), per doz.	12 0-18 0		Turnips, 12 bchs. in bags...	2 0-3 0	
Mini, doz. bunches...	3 0-4 0		— dirty, per bag...	1 6-2 0	
Mushrooms, per lb.	1 0-1 3		Turnip Tops, bag...	1 0-2 0	
— broilers...	0 8-0 10		Watercress, p. flat...	4 0-6 6	

REMARKS.—The Cucumber trade is dull, but large consignments continue to arrive daily. Good Canary Tomatoes are scarcer, consequently their prices are a little firmer. The first arrival of Australian and Tasmanian Apples are expected to arrive to-day (Wednesday). Good Bananas are scarce. A consignment of West Indian Claret Bananas arrived this week, but they did not sell readily. Grapes and Pears from the Cape are plentiful. Business in vegetables and fruit is quiet. *A. H., Covent Garden April 6, 1910.*

Potatoes.

	per cwt.	s.d.		per cwt.	s.d.
Bedfords—			Lincolns—		
Up-to-Date...	3 0-3 6		Up-to-Date...	3 0-4 0	
Blacklands...	2 3-2 9		Dalmien Beauty...	3 6-3 9	
Dunbars...	5 3-5 6		Royal Kidney...	2 6-2 9	
Maincrop...	4 3-4 6		Maincrop...	3 3-3 9	
Up-to-Date...	3 0-3 3		King Edwards...	3 3-3 9	
Lincolns—			Blacklands...	2 9-3 0	
Fergusson...	2 3-2 9		Kents—		
Sharpe's Express...	3 0-3 3		Scottish Triumphs...	3 6-4 0	
			Up-to-Date...	3 6-4 0	

REMARKS.—Trade is still rather slow and prices are about the same as last week. Arrivals have not been quite so heavy, consequently the stocks in London are becoming smaller. *Edward J. Newborn, Covent Garden and St. Pancras, April 6, 1910.*

COVENT GARDEN FLOWER MARKET.

Flowering plants are developing their blooms rapidly. Of Roses there are good Rambles of various sorts, also varieties of the dwarf Polyantha section. These latter are termed "dwarf," or "baby" rambles, notwithstanding they have no inclination to "ramble." Supplies of Azaleas still hold out. I am surprised that the coloured varieties are not more appreciated for furnishing cut bloom. I know of some of a deep red colour, which lasted fresh for a fortnight. One of the prettiest bouquets I have seen was composed chiefly of a soft pink semi-double variety of Azalea. Genistas are at their best, and very plentiful. During the past few years they have been extensively used for window boxes. Hydrangeas, which are at present very good, are also used for the same purpose, but these require to be hardened before fully exposing them on window sills. Intermediate Stocks are very fine this season. Mignonette is also very good. It is remarkable what an effect a few sunny days has on this plant, for in dull, foggy weather it cannot be induced to open its blooms. Marguerites suitable for window boxes are well flowered. Zonal Pelargoniums are also of good quality. Daffodils in pots are used for furnishing window boxes early in the season. Spiraea are good, but too tender to be exposed early; it is remarkable that, though the roots are perfectly hardy, a very slight frost will damage the foliage, and it is the same with the Dicentra (Delytra) spectabilis and many other plants from Japan. Ericas seen include E. candidissima, E. Wilmoreana and E. persoluta alba. Cinerarias are very good. The variety Matador, which was shown by Messrs. J. Veitch & Sons on Tuesday, ought to prove a useful addition for market purposes, being of good habit, and the deep red flowers are the brightest-coloured Cineraria blooms I have ever seen. Cyclamen are fairly good, but, as I have previously remarked, the best plants are not seen in the market. Lily of the Valley varies but little. Messrs. T. Rochford & Sons send in some very pretty fancy baskets well filled with the best variety. Trade has been rather better for foliage plants, but no high prices are made.

Bedding plants are a feature. As soon as there is a little sunshine the suburban gardener begins to plant tender subjects, but he often has to re-plant later on.

CUT FLOWERS.

Prices have been very uncertain, but generally in favour of buyers. There has been a great glut of Daffodils, and they are offered in the London streets at 1d. per bunch of 12 blooms. Tulips have been making rather better prices. The ordinary early Dutch Tulips are nearly over. Hyacinths are offered at low prices. Lilies have been cheaper than is usual at this season, best blooms of L. longiflorum making not more than about 2s. 6d. per bunch. Roses are over plentiful; fine blooms of Capt. Hayward make only about 2s. 6d. per dozen. Richmond keeps up to a fairly good price, and Madame Abel Chatenay is also in demand at good prices. Carnations are plentiful; there are few that make more than 2s. 6d. per dozen. Arum Lilies (Richardias) are over plentiful. Eucharis are scarce, but in respect to most seasonable subjects the market is over supplied. Good foliage is not over abundant. Berberis is the best bronze foliage, but this will now be starting into new growth, and will not be so serviceable. The bronze Galax which is sent from America lasts for a long time. The new growths of Asparagus are developing, but I find most growers cut last season's growths very close. The spring fronds of Adiantum Ferns are better developed. Smilax is good at all seasons. At one time we had to depend upon American growers for our best supplies of Smilax; now English growers cultivate it. Some enterprising English firms may take up the culture of Ruscus; the native species R. aculeatus does not grow tall enough, but R. racemosus from Portugal and France is most useful, as it lasts well, and is of a bright green colour. Last season, bunches of six growths were worth 1s. 6d. per bunch. This price should be profitable even if the plant is grown under glass. *A. H., Covent Garden, Wednesday, April 6, 1910.*

ENQUIRY.

Herr Max Leichtlin recommends the use of "Sphagnum-moss dried and as fine as sawdust" to form "a $\frac{1}{4}$ inch layer, in which the rootlets of the seedling ramify, the consequence being that "every seedling is lifted with abundance of fibre." I should be grateful to know where this material is obtainable. *A. C. B., Park House, Reading.*

Obituary.

THOMAS RYAN.—The news of the death of Mr. Thomas Ryan, gardener at Castlewellan, on March 22, will be learned with deep regret. For 40 years he lived and laboured at Castlewellan, and for more than 30 filled the office of head gardener to the late and the present Earl Annesley. His death, caused by an effusion of blood on the brain, occurred very suddenly while superintending tree-planting operations in the Deer Park. Apparently in full vigour, and with scarce a word of warning to those about him, he sank to the ground and expired painlessly. Thus in 15 months have passed away the two men—Hugh 5th Earl Annesley and Thomas Ryan—who for more than 30 years worked together at Castlewellan, achieving a result which probably stands unrivalled in Great Britain or Ireland to-day. An authoritative critic once said of the late Earl Annesley that "he built up on the enchanting slopes of Castlewellan what is, perhaps, the noblest monument to horticulture that any single man of our age has created," and were he alive to-day he would be the first to admit his indebtedness to the indefatigable industry and good taste of the late Thomas Ryan, who, more than any other man, contributed to his unique achievement. Thirty years ago the garden at Castlewellan was comparatively unknown; to-day it may fittingly be described as a hillside of varied and exceptional specimens, a gallery of exotics, grouped in perfect taste and growing luxuriantly. In the handling of seeds, in budding, layering or grafting the late Mr. Ryan had an almost magic touch, and showed himself in fullest sympathy with such work. He delighted to master a really "difficult" plant, and counted no pains too great to achieve his end. His devotion to his work was evidenced by the fact that he very rarely left the precincts of his life's labour, and "days off" to him meant further days amongst the plants he loved, studying their habits and noting their requirements. Such modesty and unobtrusiveness as he possessed tend to self-effacement. Still, it may be permitted to one who watched him closely for 17 years to place on record his qualities as a man over and above those as a gardener. No one visiting Castlewellan could fail to appreciate the gardener, and it was only necessary to know the man himself to admire the refinement and charm of his personal character. By profession he was a gardener and by nature a true gentleman. His personality was in the highest degree attractive, and won for him an exceptional position of trust and confidence in the family with whom he accomplished his lifelong service. *H. Armytage Moore, Rowallane, Co. Down.*

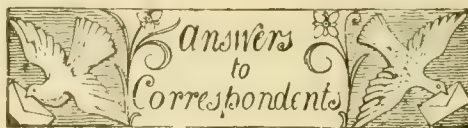
WILLIAM DENNING.—It is with deep regret we record the death of this well-known gardener and market florist at his Hampton residence on the evening of Saturday, the 2nd inst., after a brief but painful illness. It will be remembered that Mr. Denning, who was one of the most energetic members of the Urban District Council of Hampton, had been speaking at the meeting of that body on the evening of March 8 last, when he somewhat suddenly resumed his seat, and a little later it was noted that he was ill. Medical aid was summoned, and it was found that Mr. Denning was suffering from a paralytic seizure. A day or two later he recovered consciousness, but he never regained his power of speech. Mr. Denning began his gardening career at Grimston about the year 1850, and later gained experience at Tortworth Court, Patshull, Royal Botanic Gardens, Kew, and other places. He left Kew in 1856. He was subsequently appointed head gardener to Lord Bolton, Bolton Hall, Yorkshire. Later he became head gardener to the Londesborough family, first at Grimstone Park, Tadcaster, and later at Kingston Hill, Surrey, where he laid out an extensive new produce garden. In the '70's and '80's Mr. Denning was a well-known exhibitor at the meetings of the Royal Horticultural Society, his skill as a successful fruit and plant cultivator being generally recognised. About the year 1887, Mr. Denning settled in Hampton, Middlesex, where he engaged in the business of a market florist, growing a greater variety of crops than is usual with such men. In all the flower-forcing departments he displayed sound judgment and skill, whilst

his insistence on attention to the smallest details (always a characteristic of the best private gardeners) was remarkable to the end. As a contributor to the horticultural Press of two or three decades ago, and as a past member of the Fruit Committee of the Royal Horticultural Society, Mr. Denning will still be remembered by his contemporaries. He took an active interest in the formation of the Royal Gardeners' Orphan Fund, while up to the time of his death he was a member of the Gardeners' Royal Benevolent Institution. For the period of about 15 years he was a member of the Urban District Council, and was elected chairman of that body some three or so years ago. He was also one of the governing body of the Grammar School and one of the managers of the county schools. A plain-spoken and fearless man, who called a spade a spade, he pursued that course which he conceived to be his duty unflinchingly, and pos-



THE LATE WILLIAM DENNING.

sibly uncompromisingly. Mr. Denning, who attained the age of 73 on April 1, leaves a widow and family to mourn his loss. The interment took place at Hampton Cemetery at 3.30 p.m. on Thursday last, amid every manifestation of respect.



BULBS FROM BURMAH: *B. D. K.* The Lily bulbs from Upper Burmah are probably *Lilium sulphureum*, but it is impossible to be certain without seeing them. *Lilium sulphureum* will thrive successfully in a compost of good turfy loam and peat in equal parts, with a generous addition of sand. You may either plant them in good-sized pots or in a well-drained border in a cold greenhouse in northern districts or even out-of-doors in the south and south-west counties. If placed indoors, plenty of head room must be afforded, for the plants sometimes grow 8 feet high. If planted in a border, place the bulbs 4 to 6 inches below the surface of the ground and encase them in silver sand.

CEDAR OF LEBANON: *B. D. K.* With regard to the timber of the Cedar of Lebanon (*Cedrus libani*) grown in Britain, it cannot be said to be of any commercial value. Timber merchants rarely give more than firewood prices for it, and in the end it is often cut up for firewood. The reason for this is that Cedar wood grown in Britain is usually of poor quality, and Pine and Larch are far superior for general work.

We know of timber merchants who have had logs lying in their yards for years past and are still unable to find a purchaser. The wood is, however, sometimes cut up at an estate saw-mill, and used for estate work. It is usually put to the rougher kinds of work, but in the case of an unusually good trunk being found, it may be cut into panelling. As a furniture wood it is of no value. Your best plan would be to obtain an estimate for the wood as it stands.

HYACINTH BULBS: *C. T. & Co.* The bulbs are perfectly healthy; their failure to form roots or flowers is due to one of two reasons: (1) the past season was very unfavourable for the maturation of the bulbs; (2) excess of water in the soil soon after the bulbs were planted destroyed the roots.

NAMES OF PLANTS: *F. C., Frome.* 1, *Codiaeum* (Croton) *Van Oerstedii*; 2, *C. variegatum*; 3, *C. elegantissimum*; 4, *C. spirale*; 5, *Acalypha Wilkesiana*; 6, *Pilea muscosa*.—*H. W.* *Dendrobium superbum*, often called *D. macrophyllum* in gardens.—*Audenshaw.* *Dendrobium nobile*, near to *D. nobile nobiliss.*—*A. H.* 1, *Bifrenaria Harrisoniae*; 2, *Brassavola Perrinii*.—*F. S. S.* 1, *Sigmatostalix radicans*; 2, *Epidendrum virens*; 3, *Sophranitis cernua*; 4, *Ionopsis utricularioides*; 5, *Oncidium flexuosum*.—*Thompson.* *Clitoria heterophylla*.—*A. H. W.* *Trachelospermum jasminoides* syn. *Rhyncospermum*.—*Foreman.* 1, *Adiantum hispidulum*; 2, *Asplenium flaccidum*; 3, *Pteris hastata*; 4, *P. arguta*; 5, *Adiantum concinnum*; 6, *Asplenium lucidum*.—*T. N. Poulton.* 1, *Helxine Soleirolii*; 2, send when in flower; 3, *Juniperus chinensis*; 4, *Saxifraga hypnoides*.

NARCISSUS HYBRIDS: *Dr. A. R., Italy.* The flowers representing crosses from a form of *Narcissus Tazetta* named *Koenigin de Nederlanden*, and *N. poeticus poetarum*, &c., are interesting. At the same time, a very large number of hybrids from *N. Tazetta* and *N. poeticus* have been raised in the last 15 years. Many of these flowers are superior from the florists' standpoint to those you have sent us, that is, the flowers are larger, more symmetrical, and more highly coloured. Regarding the conformation of the cup being constant, it may be said that many such forms are obtained when hybridisation is attempted on a large scale.

PEACH LEAVES PERFORATED: *E. T.* The trouble is due to shot-hole fungus—*Cercospora circumcissa*. Spray the trees at intervals with the ammoniacal solution of copper carbonate. A correspondent (see *Gardeners' Chronicle*, October 14, 1905, p. 282) states that he has used Campbell's sulphur vaporiser for combating this disease with good effect. Your other question next week.

PEACH SHOOT: *Leafless.*—We gather from your note that the tree is subjected to "bud dropping." This is more prevalent in some varieties than in others, and is due to a wrong treatment of the roots during the resting season. Because the trees require very little water at that stage some persons make the mistake of withholding water from the roots entirely. This is one of the most fertile causes of the buds dropping. On the other hand, an excess of moisture may have the same effect.

PEACH FRUITS WITH WHITE SPOTS: *Oxton.* The fruits are affected with Peach mildew. Gather and burn those that are diseased, and spray the trees with liver of sulphur, using $\frac{1}{2}$ ounce in two gallons of water.

PROTECTION OF GARDEN: *R. R.* The only practical way to keep cats out of a garden is to enclose the garden with wire netting 10 feet or more high. It should be left loose at the top, so that it will bend if a cat attempts to climb it. The Sweet Pea plants just through the soil may be protected from slugs, &c., by scattering soot on either side of the rows.

TULIP BULBS: *J. H. E.* See reply to *C. T. & Co.*, respecting *Hyacinth* bulbs.

Communications Received.—*E. R.*, Bucks Flora—*E. W. F. Servens*—*E. L.*—*H. Juniper*—*D. Mch*—*W. W.*—*J. W. L.*—*G. H.*—*T. J. S.*—*H. S. T.*—*B. G.*—*J. V. N. G.* & *Co.*—*Hortus*—*J. D.*—*Chloris*—*P. T.*, New South Wales—*A. P.*—*F. M. A.*—*D. A.*—*H. G.*—*E. P. B.*—*E. H. J.*—*W. J. O'B.*—*A. B.*—*J. H. G.*—*F. W. O.*—*W. H. W.*—*T. M.*—*C. H. P.*—*C. & S.*—*C. E.*—*S. R.*—*N. H.*—*B. M.*, Harlem—*J. G. W.*, Berlin—*Rev. G. H. E.*—*W. L.*—*W. O. W.*



Gardener

Photographs by H. N. King

DOVER HOUSE.
MR. J. PIERPONT MORGAN'S ROEHAMPTON RESIDENCE.

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THE FLORA OF MONT CENIS.

HAVING had the good fortune in 1907 to be botanising during the whole season, I made my way from the Riviera and the Maritime Alps over the Col de Tenda to Turin, and thence took train to the quaint little city of Susa, which occupies the site of a Roman station of the time of Augustus, and whose eleventh century cathedral has a curious belfry in the Romanesque style.

The famous Mont Cenis Pass, one of the great historical passes across the Alps, may be said to commence at Susa, and thence, to the Hospice, is a good and interesting day's walk, full of surprises to the botanist, for Susa is only 1,640 feet above the sea, whilst the village of Mont Cenis, if such it may be called, is at an elevation of about 6,320 feet, occupying a small portion of the great plateau in which are situated the Lac and the Petit Lac du Mt. Cenis.

At the outset, it may be mentioned that the so-called Mont Cenis Tunnel lies 17 miles to the west of the pass, and, lying beneath the Col de Fréjus (8,294 feet), would more correctly be named the Tunnel de Fréjus. From 1868 to 1871 the pass itself was traversed from St. Michel de Maurienne, in Savoy, to Susa by a remarkable line of railway, known, from the name of the English inventor, as the Fell Railway. This railway was abandoned after the great tunnel was finished, but traces of it are still to be seen.

Though probably used for centuries before, it was not until the eighth century that we find records of the passage of the pass by foreigners. The present carriage road was built in the first decade of the nineteenth century by order of

Napoleon. The name is either derived from the Cenise stream which flows out of the lake, thence into the Dora, and finally into the Po, or possibly from an early record of some pastures on the great plateau of the pass. The Hospice was founded in the ninth century, and enlarged by Napoleon, who cut down all the trees on the plateau, with the result that to this day the prospect is marred.

Immediately above Susa, in the hot, sandy soil by the roadside and among the rocks, may be seen various southern plants which are rarely found so far from the Mediterranean. The rare Telephium Imperati is there, and so are Herniaria cinerea and Echinops Ritro. Though these three plants are so very different, it may perhaps be more than a coincidence that their colour is so similar, for do not many plants, particularly in hot countries, seem to simulate the ash-grey limestone upon which they grow? An intensely hirsute form of Thyme had also assumed this ashen colour, and was subsequently determined by Dr. Briquet to be *T. Serpyllum* var. *vallesiaca* Briq.

Mounting higher, a great patch of *Cytisus supinus* attracts the eye. It is a veritable limestone plant, and seems even to enjoy the white dust from the glaring road. *Arenaria* (Alsine) *liniflora* keeps it company. It is the counterpart of the granite-loving *A. laricifolia*, and both species, characterised by abundant milk-white blooms, would be found easy growers in sunny places in English rock-gardens. Several Campanulas and *Phyteumas* come into view, including the sun-loving *C. spicata*, one of the biggest and least ornamental of the group. A little higher, and we are amazed at the appearance at this low level of several plants of *C. barbata*. What possessed it to descend so low is difficult to imagine. Up above the Hospice it assumes an enormous size, as also does the rare, branched variety known as *C. b. strictopedunculata*. Some of these plants were 2 feet high.

On arrival at the Fifth Refuge by the roadside, at an altitude of about 5,500 feet, the vegetation rapidly becomes truly Alpine, and on all sides is a great wealth of flowers, including *Dianthus neglectus*, *Pedicularis cenisia*, and *P. verticillata*, *Edelweiss*, *Veronica fruticulosa*, *Phaca* (astragalus) *australis*, *Gentiana tenella*, 6 inches high in damp spots on a bank, and *Saponaria lutea*, one of the great rarities of Mont Cenis. The first glimpse of this interesting little plant is disappointing on finding it is a *Saponaria*, as, indeed, it must be also to the gardener, for though so small and rare, its dull colour prevents it from being an attractive plant. It is abundant in places at Mont Cenis, clothing the rounded rocks in great masses, and in the neighbouring Savine Valley, just over the French border, it grows up to 7,500 feet. Several Ferns adorn the rocks near the Fifth Refuge—*Aspidium Lonchitis*, *Cystopteris fragilis* and *alpina*, *Polystichum rigidum* and its rare variety *alpinum*; while by the Petit Lac is a quantity of *Athyrium alpestre*.

On reaching the great plateau, *Herniaria alpina* replaces the southern species seen above Susa; but here it has evidently been brought down by the glacier stream from the heights above, where it is more abundant. The variety and colour of the flowers at Mt. Cenis resemble those of the Maritime Alps, where the Mediterranean influence is often present. It is impossible in a short article to convey any idea of the floral wealth of the district. For interesting and rare plants it is doubtless one of the best regions in Europe. No place in Switzerland can compare with it for numbers of species, and fortunately many of them are abundant. The flora of the Western Alps generally is far richer than that of Switzerland or the Eastern Alps; and perhaps Mont

Cenis, with the Alpine region in Savoy just north of it, is as well worth a visit by the botanist or collector as any other district, not even excepting the mountains of Dauphiné.

Although in 1907, when making a special study of the high mountain flora, I found the greatest number (185) of species and varieties above 8,000 feet (2,440 m.) on the Col du Galibier, whose carriage road (the second highest in Europe) leads from the narrow Maurienne Valley to Lautaret in Dauphiné, yet no less than 180 kinds were found above that height near the little Lac Clair above Mt. Cenis, and if some other mountains and cols within walking distance of the Hospice were to be included, doubtless Mt. Cenis would come out at the top in this respect. During the whole season of 1907 it may be mentioned that no fewer than 381 species and varieties of flowering plants and Ferns were found by me at an altitude of over 8,000 feet during my itinerary in the Western Alps of France and Italy. A list, with critical notes, was published in the *Bulletin de l'Académie Internationale de Géographie Botanique* (Fev.-Mars, 1908). Thus nearly half the species and varieties seen above 8,000 feet over a large Alpine area stretching intermittently from the Maritime Alps to the Central Graians were found in one very confined tract above the Mt. Cenis Hospice.*

The little Lac Clair, round and below which is such a wonderful hunting ground, is just 9,000 feet above the sea. Half the year it must be a frozen mass of ice, and for a still longer period the snow covers the ground many hundreds of feet lower. And yet a few short weeks after the melting of the snow, its very banks and the rocky ground around are ablaze with the brilliant colours of innumerable flowers. The tiny lake is fed by water from a hanging glacier, which percolates through a vast extent of scree and granite dust. Such a moraine is an ideal place for the plants it harbours. *Campanula cenisia* and *Viola cenisia* try to hide their slate-blue flowers among the stones, and thrust their fibrous roots a foot or more into the rubble. *Cerastium latifolium* does the same, and forms tangled masses, and so does the Alpine grass *Trisetum distichophyllum*. *Arabis cœrulea*, *Saxifraga biflora* and its white-flowered variety do not burrow in the sand to such an extent. Great clumps of *S. biflora* are a marked feature of this wilderness, and bear blossoms which are white, deep pink, or of the usual purple-madder shade. *Thlaspi rotundifolium* rivals some of its neighbours in the length of its roots, and one plant of this attractive Crucifer had actually 47 distinct heads of bloom. It was left to the tender mercies of other travellers, and only a portion was cut off for preservation in the herbarium.

But we must descend to the plateau and notice a few of its interesting plants. Unfortunately none of the hotels are good, and the better rooms at the Hospice, now used as barracks, are often occupied in summer by Italian officers, for the plateau is surrounded on all sides by modern fortifications. I spent three weeks in moderate comfort at the Hotel de la Poste, whose proprietor, Signor Favre, takes an intelligent interest in the botany of the district.

Immediately opposite the hotel, and between it and the lake, is a stretch of rough, broken ground of curious formation, and comprising much white quartz. This ground is full of pits of various depths and sizes, reminiscent of the broken ground near Shipham, on the Mendip Hills, where calamine has been quarried. In and about these pits grow such plants as *Sisymbrium tanacetifolium*, *Alyssum*

* *Ranunculus alpestris*, so common in Switzerland, was not once seen by me in the Western Alps, where it is very rare.

alpestre and its variety *serpyllifolium*, *Scutellaria alpina* in various hues, *Senecio Doronicum*, etc.; and scattered over the ground in greater or less profusion one finds *Veronica Allioni*, *Erysimum pumilum*, *Linum alpinum*, *Ononis cenisia*, *Oxytropis foetida*, *campestris* and *Gaudini*, *Asperula cynanchica* var. *Jordani*, *Dianthus neglectus*, *Centaurea uniflora*, *Betonica hirsuta*, *Allium Schoenoprasum*, and hosts of other plants. *Dianthus neglectus* varies in size from 6 inches on the rich meadow land by the lake to little tufts of flowers with barely any stem at 7,000 and 8,000 feet; but the rich colour and markings of this attractive Pink remain much the same wherever it grows. *Campanula Allioni* is occasional in the district, and it seems to enjoy the sandy drift brought down by one of the glacier streams. Near the main road, higher up the pass, are two great patches of *Scutellaria alpina* with white flowers, which is a form of this variably-coloured Labiate very rarely seen. In the marshes by the lake are many kinds of *Carex*, including *C. microglochin*, *Luzula pediformis*, *Alopecurus Gerardi*, *Polygala alpestris* Reichb., *Gentiana bavarica*, etc.; and in the lake itself *Potamogeton marinus* may easily be obtained at the shallow northern end, where it flowers freely in August. In or about the Dwarf Alder woods, on the further side of the lake, are *Aquilegia alpina*, *Pyrola rotundifolia*, the tall *Phyteuma Halleri* (*Moneses grandiflora*), *Gentiana punctata*, *Ranunculus pyrenaicus*, *R. aconitifolius*, and the rare *Cortusa Matthioli*, which seems to like the shade, and on that account might be more frequently grown in damp, shady spots in English gardens, for it is beautiful alike in flower and foliage, and very distinct. *H. Stuart Thompson*.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM ARDENTISSIMUM "NORMAN COOKSON."

THIS beautiful *Odontoglossum* (see fig. 104) is one of the choicest of its section. Its parents are *O. Pescatorei* and *O. crispum*. The flowers are as large as those of a good type of *O. crispum*, the segments being all equally broad. The beautiful, deep claret-purple of the petals is set off by silvery-white margins and tips. The plant received an Award of Merit from the R.H.S. on January 12, 1909. Since that date the inflorescence had so much improved that when shown again at the meeting held on the 5th inst., the Orchid Committee raised the distinction to a First-class Certificate. It was shown by Mrs. N. C. Cookson, Oakwood, Wylam; we are indebted to the gardener, Mr. H. J. Chapman, for the photograph from which our figure is reproduced.

ORCHIDS AT BELSIZE COURT, HAMPSTEAD.

THE interesting gardens of J. S. Bergheim, Esq. (gr. Mr. H. A. Page), contain a remarkable collection of plants, and especially curious and scientifically interesting species, many of which have been acquired by their owner during his travels. The Orchids are grown in company with ordinary foliage and flowering stove and greenhouse plants. The collection of *Catasetums*, *Mormodes*, *Cynoches*, rare *Bulbophyllums*, and *Megacliniums* are suspended overhead, furnishing an interesting display of flowers during the greater part of the year. At the present time there is a fine show of *Dendrobium Wardianum* and other spring-flowering species. But the chief interest centres in several large specimens which have been in the gardens many years and are now finely in flower. One of these, a large specimen of the best variety of *Cymbidium eburneum*, has six spikes of its large, wax-like, white flowers, which last fresh for some months. This specimen has always been kept in a cool house, not heavily charged with moisture. It has grown to a great size, and

retains its foliage in perfect condition; the leaves are not spotted, as is often the case with this plant when kept in too warm a glasshouse. A specimen of *Cœlogyne pandurata* has a fine spike of very large, pale emerald-green flowers, with black markings on the labellum. This is grown in the shady corner of a warm, moist house among stove plants, and in this case, as in others, the presence of the shrubby plants has a beneficial effect.

Bletia Shepherdii, a Jamaican species, and the finest *Bletia*, is little known in gardens, although it was introduced nearly a century ago. Few would suspect it possessed the beauty as shown in Mr. Bergheim's specimen, which has seven flower-spikes, each 2 feet to 3 feet in height and bearing many bright rose-purple flowers nearly 2 inches across. The plant is kept in a warm, intermediate house during its season of active growth and the formation of the flower-spikes, but is rested under rather cooler and drier conditions for a time after the flowers are over.

Odontoglossum Rossii majus thrives well in a cool house, one plant having seven flower-spikes, the whole resembling a suspended bouquet. *Maxillaria picta* has a profusion of Hawthorn-scented, cream-coloured flowers; the purple bars of colouring are on the backs of the segments and

some Panther Lily, and especially the fine variety entitled *Burbankii*, which, when adequately established in congenial soil, will last for many years.

Lilium giganteum, the king of Oriental Lilies, is sometimes grown from seed, which it invariably produces in great abundance; but the process is painfully slow. In my own garden, where *Lilium giganteum* has sometimes reached a height of nearly 11 feet, I have invariably grown it with success from off-sets, of which a fully-developed bulb frequently produces a considerable number. This great Lily, which usually takes at least four years for its development from an off-set into a flowering plant, requires a well-drained, fibrous, fertile soil. It is not, however, nearly so exacting in its requirements, probably by reason of its greater strength and vitality, as many other Eastern Lilies, and seldom fails to succeed. In South-Western Scotland, in the garden of Caveus, in Kirkcudbrightshire, it has attained to the unique elevation, in one memorable season, of 14 feet. *Lilium m. szovitzianum* is another majestic Lily, its lemon-coloured flowers being even more beautiful than those of *L. giganteum*. Sir Herbert Maxwell informs me that it grows considerably higher in my garden at Kirkmaiden than it does at Monreith, but for



FIG. 104.—ODONTOGLOSSUM ARDENTISSIMUM "NORMAN COOKSON."

(Received a First-Class Certificate at the R.H.S. meeting on April 5.)

not on the face, as is customary in floral decoration. *Anguloa Clowesii* promises to furnish a number of its fine yellow flowers; *Vanda teres*, *Peristeria elata*, some rare *Angraecums*, and other good Orchids are sending up their spikes, and indicating by their healthy condition that Orchids can be grown well in the London district.

THE BULB GARDEN.

ORIENTAL AND AMERICAN LILIES.

AMONGST the Lilies best adapted for successful garden culture, according to my own experience, are *L. auratum platyphyllum*, *L. rubro-vittatum*, *L. longiflorum*, *L. candidum*, *L. elegans*, in all its forms; *excelsum*, a very beautiful garden hybrid, also called *Isabellinum*; *L. chalcedonicum*, a brilliant member of the Martagon family; *L. monadelphum szovitzianum*; *L. Henryi*, a native of Western China; and the Himalayan *L. giganteum*. The Californian Lilies, such as *Humboldtii*, *superbum*, and *Washingtonianum*, though highly attractive in form and colour of flower, are not quite so reliable; but there is one notable exception, viz., *L. pardalinum*, the extremely hand-

what special reason it would be difficult to explain. Here at least it is very strongly established, and is manifestly in perfect harmony with its environment. Another grand Lily, which grows with almost equal vigour and is even more floriferous, is *Lilium Henryi*, which has sometimes been described, not very expressively, as a yellow *speciosum*. Some English cultivators have found it somewhat difficult to grow well; here it has invariably grown with the greatest vigour and vitality, in ordinary garden loam, slightly enriched with manure. Of those of the *speciosum* or *lancifolium* types the most successful in Scotland, so far as my observation has hitherto extended, are *Kraetzerei* and *rubrum*. Of longiflorum varieties, which have a tendency to deteriorate through the multiplication of minute abortive bulbs, the most reliable for garden cultivation is the variety called *giganteum*, not assuredly by reason of the dimensions of the plant, but the size of its flowers, though even that is usually nothing extraordinary. *L. longiflorum Wilsonii*, while almost equally hardy, is even more beautiful, but for the special reasons I have indicated, it is not enduring. *David R. Williamson*, Kirkmaiden Manse, Wigtownshire.

JAPANESE GARDENING AT SHEPHERD'S BUSH.

AMONG the principal attractions at the Japanese-British Exhibition, which will be opened to the public about the middle of June, are two gardens designed on the Japanese style. Fig. 105 shows one of the gardens in course of construction. It is known, somewhat prosaically, as garden A, and is near the administrative offices of the exhibition; the other, garden B, occupies the site of one of the large Australian buildings of the last exhibition. The gardens are being prepared under the direction of Mr. H. Izawa, a celebrated Japanese landscape artist.

Water plays such an important part in the two gardens with pools, cascades, cataracts, and falling streams that both may be said to repre-

They were dressed in the usual Japanese costume with reed-woven slippers, and, beyond a small ladder, they dispensed with any aid other than their extraordinary agility in reaching the various parts of the building. The buildings seem very fragile, and the greatest economy was apparent in the extensive use made of any rough timber, even that from the packing cases in which the more important parts had been brought over being brought into service, provided it could be covered with a veneer of Bamboo. This building occupies one of the most elevated parts of the garden, and is reached by a broad, hog-backed bridge made of a yellow pine. Stepping stones lead cunningly to devious paths and across narrow streams. Nearly all the plants have been brought from Japan, and it will be seen that shrubs

painted on canvas forms one of the limits. No Japanese garden appears to be complete without the beautiful Wistaria, and in this garden exceptionally large specimens are grown in pergolas. To realise their enormous size, one needs to see the huge cases near by, in which they were brought here.

The other garden (B) has an area of about two acres, and in this case water again forms the dominating feature. The central portion has been made like a miniature mountain, on the sides and summits of which are buildings of the picturesque Japanese type. Streams tumble over cascades and arches, falling into the large lake at the base. Plenty of stone in rugged shape is being utilised, and at the time of our visit huge boulders were being put into position by Japanese and English workmen. When the whole is com-



FIG. 105.—JAPANESE GARDEN IN COURSE OF CONSTRUCTION AT THE JAPAN-BRITISH EXHIBITION, SHEPHERD'S BUSH.

[Photograph by W. J. Vasey.]

sent water-gardens on an imposing scale. The scene in fig. 105 shows, in the foreground, one of the largest pools lined with large boulders of a red stone obtained from Derbyshire. At the time of our visit last week the workmen were busily engaged in making the bank water-tight by puddling clay between the crevices of the blocks of stone, and in forming "pockets" for the reception of the water-side plants. Other stone of a lighter colour has been obtained from Morecombe, Devonshire, and this is employed for rock-garden features in the other parts of the scheme. The building seen in course of erection on the left-hand side of the picture represents a typical building in Japan of some few hundreds years since. Japanese workmen were engaged in its erection as we saw it, with their native tools, so different from ours, drawing both the plane and the saw towards them.

are already extensively planted, but the Irises, Pæonies, Lilies and other flowering subjects are either in temporary nursery beds near by, in cases still unpacked, or in course of transit to this country. Azaleas, Rhododendrons, Aucubas, Golden Privet, Birches, Bamboos, Maples, and numerous Conifers, especially *Sciadopitys verticillata*, Cupressuses, and a dwarf Juniper are amongst those most extensively employed to form, as it were, the framework of the scheme. On tiny islands some old and gnarled Cupressuses or other Conifers, reputed to be many hundreds of years old, form a conspicuous feature. Weeping trees are employed very largely; pendulous Birches, Beeches, Ashes and similar trees lend grace and beauty to their environment. To heighten the effect and to screen an unsightly fence, a large panorama of Japanese scenery

plete and the plants in bloom, the gardens will be worth travelling far to see.

Another feature of interest to gardeners will be a model of Battersea Park, which forms part of the display made by the London County Council, this body having been allotted a space of 4,000 square feet. There will be a tiny block of cottages like those on one of the Council's housing estates. Other models will show tenement fittings, a miniature representation of Bruce House, showing the cubicles, and the inebriates' infirmary. In contrast with these will be an old type of common lodging house.

Holborn and Kingsway are also to be displayed in model. The sanitarian will find a very instructive representation of the Barking sewage scheme; whilst engineers and others interested in London traffic will be able to see a section showing the underground railways.

CULTURAL MEMORANDA.

PERENNIAL ASTERS.

At this time of year the Perennial Asters or Michaelmas Daisies require some attention. We grow here about 600 plants. Immediately the flowering season is over the plants are cut down, lifted and stored in trenches. These are made about 4 feet wide and 10 feet long, throwing the soil around, as would be done in the case of a Celery trench. The plants are then taken from their flowering quarters, placed in the trenches and well firmed in. In the event of very hard weather they are protected; I usually place Pea sticks over them and then cover them with stable-yard litter. Care should be taken that the litter is removed from the plants on all favourable occasions to admit light and air. I find this method of storing very satisfactory. Immediately after the plants are safely placed in their winter quarters the borders receive attention. We trench them generally about 3 feet deep, believing that deep and early trenching is essential. The ground is got into thoroughly good order before the planting takes place. We usually allow 3 feet between each plant and 3 feet between each row.

The following varieties being tall growers, are very good for the back rows:—Edwin Beckett, Grandis, Umbellata, Tradescanti, Robert Parker, Amethystinus, The Pearl, Mrs. Earle. The four last-named varieties I cut down in May, owing to their being of a very tall habit.

For the second row we use Purity, Mrs. Raynor, cordifolius Elegans, Triumph, Photographer, cordifolius profusus, Maachii; and for the third row Enchantress, Shortii, ericoides, Superbus, Freedom, Decorator, cordifolius major, Hon. Edith Gibbs, vimineus perfectus, King Edward VII., Thora, and Ideal.

In the fourth (or front) row we plant Osprey, Royalty, Ophir, Sensation, ericoides, Delight, Esther, Hon. Vicary Gibbs, Golden Spray, salicifolius Treserve and E. C. Buxton.

When planted, they are staked, leaving only five growths to each plant; early in August, when they are fairly well grown, all these growths are trained out separately. If each growth is staked out in the early part of the season the border becomes crowded like a forest. *R. Richards, The Hermitage Gardens, Holmes Chapel.*

GLADIOLUS PRIMULINUS.

THOUGH introduced to cultivation some years ago, this plant (see fig. 106) does not seem to be at all common; indeed, until this spring one might have searched in vain for it in the catalogues of bulb merchants in this country, and, though it is to be found in the pages of one of the Continental lists, it is priced at the extravagant sum of 10 francs, on which basis the corm is well on the way to being rated at its weight in gold.

The apparent dearth of corms is not easily explained, because, while most of the Gladioli reproduce themselves prolifically, none is more prolific than *G. primulinus*.

A careful record of 18 bulbs received from Mr. Leichtlin, and planted in the late spring of 1907, shows that, when lifted in the autumn of the same year, they had produced 94 offsets, 28 of which flowered the following year; by November 9, 1909, or two seasons later, the descendants of the original 18 bulbs numbered no fewer than 182 of flowering size, to say nothing of 151 smaller offsets, and quantities of seedling corms.

The plant ripens seed freely, even in such a cheerless summer as that of last year, and the seed germinates in gentle heat. Offsets frequently flower the season after they are produced, bearing in turn a quantity of spawn, and, in congenial surroundings, the latter attains full size in three years' time.

An unusual feature is the stoloniferous character of the offsets. In this genus the spawn is



FIG. 106.—HYBRID OF GLADIOLUS PRIMULINUS.

generally found nestling directly under the base of the parent corm; but, with *G. primulinus*, this is not so, each offset being produced at the end of a white, string-like, creeping stem, an inch or more in length, springing from the base and sides of the corm (see fig. 107). These stems are so thickly twisted about the corm that it is a matter of difficulty to bring out the peculiarity clearly in a photograph.

Culture seems to present no difficulties; in fact, it could not well be more simple. A light, free soil, thoroughly well drained, plenty of sun and warmth, with ample moisture, seem to make up the sum of the plant's requirements. The provision of moisture to the roots is of importance, as well it may be, since the plant is at home round about the Victoria Falls, where eye-witnesses report it as growing in perennial mists; hence, no doubt, the very pronounced hooded shape of the blooms. It was noticed that, during last summer, the number of offsets produced was less than in the summer before, and this may be put down to the want of sun and warmth.

As was no doubt to be expected, the plant had not been in cultivation long before it occurred to somebody to "improve" it, and now hybrids of *G. primulinus* are offered in various directions, though the species itself is not. So far, none of these hybrids compares with the typical plant, which has a charm all its own, thanks, no doubt, to its lovely colour, and whilst, perhaps it can hardly be said to be beautiful, it strikes one at once, like many species of plants, as being essentially well bred. *G.*

TREES AND SHRUBS.

CATALPA CORDIFOLIA.

I AM reminded, on reading the notes on pp. 74, 100, that something like 150 trees were raised from seeds in the gardens of the Royal Horticultural Society at Chiswick, and distributed amongst the Fellows, in the spring of 1880 or 1881, so that if any of the seeds fell into appreciative hands, they should, by this time, be making handsome trees. At the time of which I speak *C. speciosa* seemed to be regarded merely as a fine variety of *C. bignonioides*, though it may be distinguished by its soft downy, more acuminate and inodorous leaves, as well as by its larger flowers, fruit, and seed. In America it is more valued as a timber tree than *C. bignonioides*, because of its more upright growth. The Western *Catalpa* is still known in America as *C. speciosa*, though *C. cordifolia* is the correct name; its habitats are Western Kentucky and Tennessee chiefly. The seeds are flat, oblong, and terminate in a fringe of fibres at either end. These fibres are the prolonged and lacerated testa, and, by reason of the fact that they remain free at the ends, the seeds of *C. cordifolia* may be distinguished from those of *C. bignonioides*, which, beside being narrower, have their fringes rolled up into a pencil or point. The two species may thus be distinguished at the time of sowing, and disappointment avoided from the outset by those acquainted with these differences.

COTONEASTER SIMONSII.

THE specimen of this Himalayan shrub, mentioned by the Hon. Vicary Gibbs on p. 123, must indeed be a fine one, and should encourage lovers of trees and shrubs to plant the species more frequently in positions where the individual character of the tree will be seen to advantage when it attains something like its full growth. In shrubberies planted by way of a screen, the rule, too often, is to allow all the shrubs to struggle with one another for light, air, and space, till

they become spoiled and shapeless. I can corroborate the statement about the hardness of this Himalayan species, for of the 10 or more species from the same country, probably none are more hardy than *C. Simonsii* and *C. microphylla*, which thrive in the north of Scotland without any protection whatever. When trained against walls, the branches reach a height of at least 10 feet or 12 feet, and *C. microphylla*, being of a semi-scandent habit, seems to require some support in order to grow tall. It is sometimes used as an edging to garden paths, however, where it gets neither support nor shelter. *C. Simonsii*, though not exactly erect, is self-supporting, and on a private estate in Kincardineshire, where it was grown as a loose hedge around a nursery belong-



FIG. 107.—YOUNG CORMS OF *GLADIOLUS PRIMULINUS* PRODUCED AS OFFSETS.

ing to the garden, it grew 6 feet high and 4 feet through, and fruited freely. It was perfectly evergreen, though the temperature in severe winters fell to zero or below it. *J. F.*

THE CUTTING BACK OF RHODODENDRONS.

It sometimes becomes a question with gardeners and amateurs how to proceed with Rhododendrons in pots, tubs, and cut-of-doors beds, when the branches are grown bare and of an undesirable height, owing to old age and crowding together. If not of great age, they may safely be cut back into three or four-year-old wood in the early spring months; but it is advisable in the case of very old plants in which the dormant buds force themselves out from the bark with much difficulty, to perform

the pruning slowly in August or September: a good practice to follow with many subjects, especially Camellias, the Citrus tribe, Ficus, many New Holland plants, Daturas, Brugmansias, &c. It is of considerable assistance if, in the spring months following this hand pruning, weak manure water is afforded the plants. It is well also, when the dormant buds begin to show by their swelling beneath the bark, to syringe or otherwise moisten the plants overhead. In the case of Rhododendrons growing in beds and borders out-of-doors, a hard cutting back presents an opportunity favourable for replanting and affording some fresh soil, leaf-mould, sand, &c., which aged plants are sure to need. The same kind of renovation is required by old plants growing in tubs and other receptacles in the glass house. *F. M.*

NOTICES OF BOOKS.

THE IDEAL GARDEN.*

THE 28 chapters which comprise Part I. of this new volume might be appropriately described as essays on gardening rather than a considered and unified whole. They are very pleasantly written, and though the higher flights, such as one expects when E. V. B. takes up her pen, are seldom reached, still, the writing, on the whole, is above the common-place. Fine writing is becoming more and more imperative to meet the taste of the reading public, and in this to a greater degree than in his other books. Mr. Thomas has achieved success. Occasionally he is perhaps a little too exalted for the ordinary reader, who may be at a loss to construe such expressions as "paths flooded with drifts" and "the spirit of peace finds rest," but no doubt these have a meaning to the initiated. The work is studded with helpful suggestions, and not overloaded with details. The remarks on garden planning are good; that on the ugliness of curves, as we often see them, being true and well-timed. Then there is a very long chat about Roses, which will be read with pleasure and advantage, but one can hardly accept the large plan of a Rose garden, which shows how ugly curved walks can be, as being the design of the writer. In succession, come such alluring subjects as paved gardens, fragrant flowers, wall gardening, the Dutch garden, bedding-out, Rhododendrons, Alpines, and Lilacs, of which the Persian is a favourite. A chapter on trees is scarcely so satisfactory, Conifers being belauded, and such mistakes occurring as showing *Prunus Davidiana* to have white flowers, and making the Snowball Tree and the Guelder Rose distinct, while *Spirea arifolia* is marked 5 feet in height instead of 15. Nor might one get the Spanish Broom if ordered by the name of *Genista hispanica*. In the "Flower Border," the custom of arranging one kind of plant at intervals is condemned perhaps on the whole judiciously, but the *Kniphofia*, which is instanced, may be treated very effectively in that way.

There is an informative though not too lengthy chapter on flower associations, which will be of much use to those whose knowledge of flowers is limited, and Mr. Thomas, like other observers, sees a great future for the Perpetual Carnation in the flower garden. I should be inclined to prophesy that the present year will see a great number of gardens each with one or more beds of these attractive plants. Old plants make bushes, almost if not quite, 4 feet in height and 2 feet across, and the way to employ them to the best advantage would seem

* *The Ideal Garden*, by H. H. Thomas, Editor of *The Gardener*, with 36 coloured plates and 96 illustrations from photographs. (Cassell & Co., Ltd., 1910.) Price 6s. net.

to be to set them widely apart and carpet the spaces. Mr. Thomas says allow 6 to 9 inches between the plants, which is obviously far too little. Mention may be made of chapters on Dahlias, Clematis, Sweet Peas, and annuals, of the short calendar, and the list of hardy perennials. The illustrations are rather unequal, but the book as a whole is got up in a style that will commend it to flower-loving amateurs. R. P. Brotherston.

NOTES FROM A "FRENCH" GARDEN.

WE are marketing the first batch of Cos Lettuces grown under the cloches. Whenever possible, the whole of one bed is cleared on the same day. The cloches are then transferred to the second batch of Lettuces planted on the south side of the bed, but before this is done the plants are cleansed and afforded a copious watering. Where 1,500 to 2,000 cloches are employed for forcing Cos Lettuces, it will be found that the second batch on the first bed is practically ready for forcing as soon as the last bed is cleared of the first batch.

The Cos Lettuces planted in the open require a good watering once a week to have them ready for marketing immediately after those grown on the hot-beds. When the first batch of Cos Lettuces are marketed, Cauliflowers are planted in their place, but on the outside rows only.

The Carrots in the frames are swelling their roots; they must on no account be allowed to become dry. If they are well advanced and should the weather be favourable, the frames and the lights may be removed and used for the Melon beds, though it must be remembered that the season for frosts is not yet over, and frost would considerably retard their growth.

The Melon plants in the nursery beds receive water and ventilation whenever necessary, and every encouragement is afforded them to form good strong plants by the time they are ready for planting in their fruiting quarters.

All the cold frames and the lights have been utilised for the Melon crop. Melons planted in the first days of April have been stopped for a second time, at the fifth leaf on each branch, as the shoots are short-jointed at this time of the year.

In their early stages Melons are kept on the dry side to obtain hard, healthy wood. When the female flowers are showing, the roots are well watered, and this will be sufficient moisture till the fruits are set.

Ventilation is given moderately, but on every possible occasion. When the sun is shining brightly the Melons are inspected once or twice during the day, and shade afforded them if necessary. Flaggings are due to one of two causes, either lack of ventilation, or unhealthy root-action caused by an excessively wet soil.

The Passion Lettuces that have been grown without heat have almost recovered from the check caused by the removal of the cold frames. They require abundant waterings.

We are sowing Ridge Cucumbers in the Melon frames for a batch of plants to place under the cloches late in May in the open ground.

The Tomatos are being transplanted, this time 100 plants per light. They are set as deeply as possible to develop roots on the stems. As soon as they are established, ventilation will be given freely, both day and night.

The Turnips in the frames require frequent waterings; the lights are kept open at night. The frames and lights from this crop will be available for other use early in May. P. Aquatias.

PLANT GROWTH IN EAST JAVA.

WITH reference to the note on *Solanum Wendlandii* in the Peradeniya Gardens, Ceylon (see p. 11), I may say that this plant grows here like a weed. A specimen, now 100 metres long, was planted some six years ago on a trellis; that trellis is now covered to a thickness of about 2 feet, and the plant has long since obtained a hold on the roofs of two adjacent houses. I had another specimen in my garden for about a year, but did away with it, as the enormous growth of this species is almost uncontrollable, and suppresses all other plants if it is not cut back severely almost every week.

Ipomœa tuberosa also grows rampantly. A

specimen has covered several trees, and is of a greater height even than the *Solanum*. Unlike these plants, another gigantic climber, *Mucuna gigantea*, flowers as soon as it reaches a length of about 5 metres. But the fastest-growing species is *Passiflora cœrulea*, which has reached 25 metres in four months from the seedling stage. This Passion flower, however, does not bloom, perhaps on account of its very luxuriant growth, and as its subterranean roots are very troublesome, I am thinking of doing away with it. *Passiflora alba* does not grow so fast, but it also seems disinclined to flower. *P. edulis* is now starting into growth, and I have hope that this species will flower. *P. quadrangularis* seldom blooms, as the temperature seems to be too low for it. *Schubertia grandiflora* flowers profusely; it has already reached a length of 12 metres. *Beaumontia grandiflora* is also starting into growth. Another, unknown, gigantic climber, the seeds of which I obtained from Brazil, has reached a length of 20 metres. It is covered with brown hairs, and the seeds are very like those of *Entada scandens*, but the whole plant is quite different. My specimen of *Entada scandens* is about 15 inches long, but the plant grows slowly, and requires the climate of the lowland. The *Aristolochias* are starting into growth. I will write about them when they are flowering. *Colocasia antiquorum* makes a gigantic plant; a specimen here is 2.50 metres (about 8 feet) high, with leaves 2 metres long, and a stem with a girth of 50 centimetres. Every plant bears six or seven spathes.

Roses, of which in a few months I shall have some 700 varieties, form trees producing many thousands of flowers. *Rosa rubiginosa* and *R. rugosa* produce very small blooms, but *R. canina* flowers profusely; my other Roses are all varieties of *Rosa Thea*. A tree of *Thuja orientalis* has reached a height of 12 metres in 10 years! A fine, climbing species of *Desmodium*, with strong-scented, but small flowers, grows wild about here. It is identified as *D. strangulatum*, the species figured in Wight's *Icones III.* on plate 985. The plant is covered all over with stiff hairs. I have planted specimens in my garden, and shall be glad to send seeds to anyone in exchange for other seeds. Other species of *Desmodium* that are not tropical will not grow here. N. Buisman, Mongko Djadjar, near Lawang, East Java.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Dendrobium.—For weeks past *Dendrobium* species and their hybrids have formed a prominent feature in the Orchid houses. Many of the earlier-flowering plants are now developing their new growths, which will produce roots when they are a few inches high; therefore, as soon as each new growth begins to swell at its base, the plants should be supplied with fresh material, for if delayed till the roots appear, many of them would be likely to get injured. Healthy plants which have sufficient room for further development need only be re-surfaced with fresh compost. In the case of others, the plants should be allowed to become quite dry for a few days prior to repotting, so that the old, decayed materials may be easily removed. For such strong-growing plants as *D. nobile*, *D. Wiganie*, *D. Ainsworthii*, *D. Dominianum*, *D. Burfordense*, *D. Thwaitesii*, *D. chesingtonense*, *D. melanodiscus*, *D. Juno*, *D. Boxallii*, *D. Rolfeae*, *D. Sibyl*, and *D. Apollo grandiflorum*, the ordinary flower-pot is suitable; while for the dwarf-growing varieties and those of pendulous habit, as *D. crassinode*, *D. primulinum*, *D. cucullatum*, *D. cretaceum*, *D. crepidatum*, *D. Pierardii*, *D. Parishii*, the different varieties of *D. superbum* (*macrophyllum*), as *D. s. Huttonii*, *D. s. Dearei*, *D. s. Burkei*, and *D. s. anosmum*, small, shallow pans which can be suspended close up to the roof are preferable. When repotting healthy, well-established plants, do not disturb the roots unnecessarily, especially those in front of the plant. Cut away all useless back-bulbs that have flowered, and remove as much of the soil from the back part of the plant as is practicable. By this means the plants can be got into pots much smaller than otherwise would be possible, which is a great consideration where house room is limited. Plants which are unhealthy and have

lost their roots should be turned out of their pots, all dead and decayed parts cut away, and replaced in as small pots as possible. For the potting material use Sphagnum-moss and small crocks only. The pots should be half filled, at the least, with clean crocks, secured with a thin layer of rough Sphagnum-moss. The potting compost should consist of *Osmunda* and *Polypodium* fibres in equal parts, intermixed with plenty of small, broken crocks to improve the drainage. Pot each plant with moderate firmness, and place stakes in position at once, as it is difficult to do this without injury when the young roots are pushing through the soil. Place the plants in the East Indian house, or warm plant stove, keeping them well up toward the light. *Dendrobiums* also thrive exceedingly well in warm vineries. They delight in early morning sunshine, and also in afternoon sun when it begins to lose its power for harm; but until the plants begin to form their new pseudo-bulbs they should be shaded for several hours during bright days. Until the young growths and roots have made considerable headway, the plants must be carefully watered, avoiding any saturation of the soil. Keep the soil rather on the dry side for several weeks after repotting. Syringe the under-sides of the leaves very lightly with tepid rainwater several times a day in warm and bright weather. At Burford we propagate each year a few plants of the rarer varieties, so as to replace plants that become worn out through over-flowering. This is done by cutting off some of the old pseudo-bulbs, preferably those which have failed to bloom, specimens that have flowered being practically useless. The bulbs are laid upon some damp Sphagnum-moss in a hot, moist propagating-frame. Young plants may also be obtained in the following manner:—Cut the bulbs into short lengths, taking care to have a sound eye or bud to each piece, and place them firmly into pots filled with Sphagnum-moss, resting the bud at the top of the severed piece just upon the surface of the moss. These should also be put in the frame. Young growths will soon appear, and when they produce roots they should be taken out and placed in a small pot, using chopped Sphagnum-moss only. Young seedling *Dendrobiums* may be repotted at this season.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir Ernest Cassel, G.C.B., Moulton Paddocks, Newmarket.

Fig trees in pots.—The earliest trees are now ripening their fruits. Plenty of fresh air, but less moisture will be required in the house; leave the upper ventilators open all night to the extent of an inch whenever the weather permits. Liquid manure must not be given after this date; clean water only must be afforded the roots. Damp the paths and other surfaces inside the house once or twice each day according to the weather conditions, but remove the evaporating pans from the pipes.

Fig trees in borders.—Trees which are swelling their fruits may be given liquid manure and soot-water, with an occasional sprinkling of some approved fertiliser. Those which are "flowering" may be treated as advised in a previous Calendar. Syringing should be discontinued when this stage is reached, but plenty of atmospheric moisture must be provided. Manure water, sprinkled about the paths, &c., after the sun has gone down, will be beneficial.

Gathering and packing Strawberries.—The fruit should, for preference, be picked in the morning, and if not packed at once, may be laid in a cool shed. Use shallow boxes or wooden trays lined with cotton wool to carry the fruits from the glasshouse to where the packing is done, laying each berry carefully on its side so that it does not roll about. Choice dessert Strawberries are best packed in single layers, shallow wooden boxes just deep enough to hold the fruit and packing material being most suitable. Line the box with a single layer of cotton wool. Wrap each fruit in a leaf and pack firmly in rows, leaving the stalks in convenient positions for unpacking. Strawberry leaves are often used for the purpose, but I prefer leaves of the French Bean which have been picked overnight so that they are wilted and soft. The main point in packing the fruit is to have the contents of the box quite firm, so that it cannot become disturbed in transit. Having filled the box, place a sheet of tissue paper over the fruit then another thickness of cotton wool, and finally the lid.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman,
Royal Gardens, Windsor.

Vegetable Marrow.—Sow seeds in small pots so that the young plants will be ready to plant out about the middle of May. As soon as the seedlings have developed each their first rough leaf place them in 6-inch pots and grow them on under glass until the time of planting arrives. Where large supplies of Marrows are required, the best plan is to make a plantation in the open garden. The plants must be covered up at night time until danger from frost is past. Plant them at a distance of 6 feet apart, in holes filled with loam and manure in equal parts. For a successional batch the seeds may be sown out-of-doors, but it will be necessary to cover the seedlings with hand lights until frost is over. When well established, frequent supplies of liquid manure should be afforded the plants.

French Beans. In gardens where pit-accommodation is available there need be no difficulty in having a constant supply of this vegetable. After this date French Beans may be grown in cold frames, provided the lights are covered on frosty nights. A batch may also be raised in small pots for planting under the shelter of a south wall, but they must be protected from frost and cold winds by Spruce or other evergreen branches.

Turnips.—Now that there is no danger of the plants bolting, Turnips may be sown freely. The Turnip loves moisture, and should be grown quickly on good, rich soil, which has been dug and manured some time previously. As the season advances a slightly shaded position should be chosen for the crop, and frequent small sowings made in preference to large sowings at one time. Thinning should be done as soon as the plants are large enough, allowing 9 inches between them. If the Turnip-fly proves troublesome, frequent dustings of soot and wood ashes in the early morning will keep it in check. Snowball and Red Globe are reliable varieties for sowing at this season; allow 18 inches between the rows.

Salsafy.—This vegetable may be sown about the middle of the present month; if sown earlier the plants frequently run to seed. Salsafy is a deep-rooting plant and requires well-cultivated land. The seeds should be sown in rows made 18 inches apart, and the young plants thinned to 9 inches apart.

Scorzonera may also be sown now. Allow a little more room between the rows than for Salsafy, but afford similar treatment in other respects.

Asparagus.—The beds should be examined, and if the soil has been beaten down by recent rains the surface should be stirred with the fork and a liberal dressing of common salt applied. We are breaking the surface of the beds here for the third time this season. Now is the proper time to sow Asparagus seed; the seedlings will be ready for planting two years hence. The ground for the seed-bed should be light and rich. The distance between the rows should be 18 inches and the drills, about 2 inches in depth. When the young plants appear above the ground the Dutch hoe should be used frequently to keep the ground free from weeds.

Lettuce.—Plants raised under glass will now be ready for planting out on a well-prepared border. If they have been allowed plenty of fresh air the plants will not be checked and should be ready for use in May. After planting, frequent dustings of hot lime in the early morning will free the ground from slugs, which are troublesome amongst early Lettuce. Small sowings should be made fortnightly from now onward in order to keep up a continuous supply of heads through the summer months. Mammoth White Cos and All the Year Round are suitable sorts for summer sowing.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Weetwood, Yorkshire.

Euphorbia Jacquiniaeflora.—Stock plants of this Euphorbia treated as advised in a previous Calendar will now be providing an excellent supply of cuttings. These should be removed with a portion of the old wood attached, and plunged immediately into powdered charcoal to prevent bleeding. Have in readiness a number of small pots (60's), filled, moderately firmly, with a compost of equal parts leaf-mould, coarse silver sand, and fine peat. Insert four or six cuttings

around the edges of the pots; give sufficient water to settle the compost, and plunge the receptacles into a bottom heat of 70° to 80°. Keep the propagating case closed for a few days, and frequently remove the moisture from the glass. Shade the cuttings until roots are formed, after which admit fresh air with caution, so as to gradually harden them; allow them also to have more sunlight. Euphorbias succeed best when cultivated very near to the glass. *E. jacquiniaeflora* is an erect-habited plant and does not form many side branches, but a bushy habit may be induced by pinching the main shoots or tying them down at their tips. Another excellent plan is to pot four to six plants together. Small plants in 5-inch or 6-inch pots are very serviceable for decorative purposes.

Euphorbia (Poinsettia) pulcherrima.—The main batch should now be raised as soon as cuttings are obtainable. These may be separated from the parent plant and treated as advised for *E. jacquiniaeflora*, with the exception that they are best rooted singly in thumb pots; when several are rooted in the same pot extreme care is needed in dividing them. The foliage, when in a young stage, must be protected from excessive sunshine. Repotting must be regularly attended to, and watering performed with great care.

Celosia.—This plant succeeds best in a compost of good fibrous loam, leaf-mould, and well-decayed manure. As the seedlings become large enough to handle, transfer them to thumb pots and repot them as often as may be necessary. Celosias require ample rooting space until placed in their flowering pots, and, whilst the roots are in an active state of growth, they must on no account be allowed to suffer from dryness. They enjoy a close, moist atmosphere of 60° to 70°, but as they reach their flowering stage they may be allowed cooler conditions and drier surroundings.

The stove.—As the season advances the temperature may be raised to 70° or 75° at night-time, with 5° to 10° advance during the daytime. An occasional fumigation with a nicotine compound, or syringing with an insecticide, immediately insect pests are detected, will save much labour later in the season.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the MARQUIS OF NORTHAMPTON, Castle Ashby, Northamptonshire.

Disbudding and thinning.—The Apricot trees will be the first to need attention in these matters. Indeed, in the warmer parts of the country, they are almost at the stage when they need disbudding. This work should always be done as soon as the shoots can be detached easily with the finger and thumb. Commence at the top of the tree and work towards the base. Do not remove all the unnecessary shoots at one time, but take away a few over the whole tree at each of several operations, which may take place at frequent intervals. Commence by rubbing out the back and foreright shoots, then those that are badly placed; thin out such as are not required for forming spurs, in order to avoid any overcrowding of the shoots. If disbudding is done thoroughly and intelligently, it will obviate the necessity for a great deal of pruning in the winter season. Train in any young shoots that form near the base of the tree, provided there is sufficient space on the wall to accommodate them easily. Such young shoots will be useful for replacing old, useless branches at a later date. Any shoots that are not required for laying in, but are wanted for fresh spurs, should receive their first stopping when the fourth or fifth leaf is made. In cases where the fruits are setting freely it will be necessary to thin them out when it can be seen which are likely to swell best. This thinning should be done gradually, and not too severely, until the stoning period is past.

Peach and Nectarine.—These trees require to be disbudded more severely than the Apricot, and although Peach and Nectarine trees will fruit upon spurs, this system is not often followed. The disbudding should be carried out in a way similar to that recommended for Apricots.

Forced Strawberry plants.—If it is intended to plant out Strawberries which have been forced this season, the ground should now be made ready for the plants. The soil should be manured well, and trenched several weeks before the planting is commenced, so that it may have time to settle down. The plants should be selected from the last batch or two which have not been sub-

jected to extra hard forcing. They may be planted out in four or six weeks' time, when they have been sufficiently hardened off. Plants treated in this manner bear excellent crops of first-class fruits in the following year. The variety we have used for this purpose is Royal Sovereign.

Grafts.—Examine those trees which have been grafted, and fill up any cracks that may be found in the clay, by wetting it and working a little more clay in the cracks with the hand. If damp moss is tied over the balls of clay and moistened frequently in dry weather, this will serve to prevent further cracking. If any more grafting is still to be done, it should be carried out at once.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

Hollyhock.—This stately, old-fashioned flower has many admirers, but has fallen out of cultivation largely during recent years owing to the great prevalence of the disease—*Puccinia malvacearum*; plants deteriorating through remaining in the same position for a number of years and thus fall a prey to the rust-disease. To mitigate this, Hollyhocks should be grown each year from seed, by which method excellent results may be obtained. Seed sown early in the New Year will soon germinate, and if the seedlings are grown under glass, then gradually hardened off and potted as necessary, they will soon be ready to transfer to the open ground, where they will flower the same season. To produce strong, flowering plants, a good root-run, well enriched with decayed manure, must be prepared for them. They may be planted with good effect at the back of the herbaceous borders or in open positions in shrubberies, but ample room must be afforded them to ensure success. Protect the plants from attacks of slugs, and stake them as soon as they require supporting. Encourage the leading growth at all times and remove off-sets arising from the base of the plants, to concentrate all the energy of the plant in the main shoot. Mulch the roots in dry weather, and give liquid manure occasionally, as well as copious supplies of water.

Gladioli.—The present month is a suitable time to plant Gladioli. Select ground that has been well worked, preferably in the winter, and fork it over now, first adding a sprinkling of wood-ashes. Cover the corms to a depth of 4 or 5 inches, label each clump or row, and level the bed neatly with an iron rake. The plants will be benefited by a mulching applied in dry weather, and nothing is better for the purpose than manure from a spent Mushroom-bed. Water must be afforded them in dry weather, and the shoots tied to neat stakes as they develop. *Gladiolus brenchleyensis* produces bold scarlet flowers and is a fine subject for massing. *G. Childsii* and *Lemoine's* hybrids are also to be recommended.

Pansies.—Varieties of practically all colours may be raised from seeds. If seed is sown now in shallow boxes and germinated in a gentle heat, the young plants being subsequently transferred to other boxes and grown under cool conditions, good plants will soon be obtained for planting out in the borders. A site that is cool during the hottest part of the day suits the Pansy and Viola best.

Flowering shrubs.—The recent warm showers have caused the shrubs to burst forth into growth. *Ribes sanguineum* and its varieties, *carneum*, *album*, and *atrosanguineum*, make goodly shaped bushes with a little care and attention. Another interesting shrub not unlike the *Ribes* in habit is *Nuttallia cerasiformis*, or *Oso Berry*. It is wonderfully free in flowering and produces its racemes of greenish-white flowers in great profusion; it also fruits if plants of both sexes are grown. The *Forsythias* are particularly striking in spring-time. *F. suspensa* makes a good individual specimen for the shrubbery or a wall, and is also excellent for massing in large beds. *F. viridissima* is of a dwarfer habit than its congener, and the wood is of a greenish colour. Any of these early-flowering shrubs that require pruning should be dealt with immediately the flowering period is over, so that plenty of young wood may be formed for next season's display. *Spiræa Thunbergii* will shortly be wreathed with its small white flowers, closely followed by *S. arguta*, a more desirable garden species, being compact in habit.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 19—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. R. Lloyd Praeger on "The Wild Flowers of the West of Ireland.") Devon Daffodil and Spring Fl. Sh. at Barnstaple (2 days).

WEDNESDAY, APRIL 20—

Roy. Hort. Soc. of Ireland Spring Sh. (2 days). Huntingdonshire Daffodil and Spring Fl. Sh. Roy. Hort. Soc. General Exam. 6 to 9.30 p.m.

THURSDAY, APRIL 21—

Ipswich and E. of England Daffodil and Spring Fl. Sh. Falmouth Spring Fl. Sh. (2 days). Linnean Soc. meet.

FRIDAY, APRIL 22—Exeter Daffodil Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—48° 3".

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, April 13 (6 p.m.): Max. 61°; Min. 51°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 14 (10 a.m.): Bar. 29.3; Temp. 54°; Weather—Overcast.

PROVINCES.—Wednesday, April 13; Max. 54° Cambridge; Min. 31° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY—

Perennials, Border Plants, Lilies and Hardy Bulbs, at 12; Roses, at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

Herbaceous Plants, Hardy Border Plants and Bulbs, at 12; Trade Sale of Miscellaneous Plants and Bulbs, at 12.30; Roses, at 1.30; Japanese Lilioms, at 2; Palms and Plants, at 5; at Protheroe & Morris' rooms.

FRIDAY—

Freehold Nursery, Enfield Highway, Middlesex, by order of the Executors of J. H. Thompson, deceased, at the Mart, London, E.C., by Protheroe & Morris, at 2; Imported and Established Orchids, at Protheroe & Morris' rooms.

**The
Importation
of Nursery
Stock by
America.**

An emphatic and reasoned protest is made by our American contemporary *Horticulture* against the passage of the Bill, now before the House Committee on Agriculture at Washington, to provide for inspection of nursery stock at the ports of entry. This Bill—known as the Simmons Bill—is designed to prevent the importation of nursery stock infested by insect and other plant pests. *Horticulture* certainly makes out a good case for the reconsideration of this measure, which, it maintains, will mean delay and ruin to a most perishable class of goods. As an example of the enormous amount of inspection which the adoption of the Bill must entail, it is mentioned that the arrivals of French nursery stock at a single port—that of New York—amounted during the last 11 days of January to 1,375 cases, containing some 17,000,000 seedlings, and of a value of about £25,000. In passing, it is of interest to observe that about 26 per cent. of this value represents import duties. As is pointed out by our contemporary, the imported cases of seedlings are specially and

tightly packed by machinery. Therefore, adequate inspection without complete unpacking is an impossibility, and complete unpacking—at the hands of inspectors, who can scarcely be expected to be as trained or as solicitous as the exporter—must mean enormous damage. We have, of course, no opinion to offer on what is a matter for the Americans to decide; but we tremble lest such a mode of dealing with a difficult problem should find favour at home. Whatever may be the case in America, it would be deplorable if any such proposal were adopted in this country. It is a wise and proper thing to attempt to keep out diseased plants; but the only mode in which this can be done is to require a clean bill of health with the imported goods. If entrusted to experts of standing and repute, the method of certification should prove adequate. To commit the work of inspection of plants, with a view to determining whether they are diseased or not, to any but people trained in a knowledge of plant pathology is altogether useless. In the case of such perishable material as nursery stock, to attempt serious examination at the port of entry is impossible. Such examination as can be attempted must prove either a nuisance or a farce.

**Further
Experiments
with
Nitro-
Bacterine
at Wisley.**

Mr. Chittenden reports in the current number of the *Journal of the Royal Horticultural Society* (Vol. 35, Part III., page 391) the results of the trials with nitro-bacterine, which were carried out at Wisley during the summer of 1909.

The plant selected for the inoculation experiments was the French Bean, and the variety used was Canadian Wonder, the seed of which was presented for the purpose of the trials by Messrs. Sutton & Sons, of Reading.

The method of trial was similar to that adopted in the previous years, except that, in accordance with Professor Bottomley's recommendations, a dressing of chalk was applied to the ground. The land was then bastard-trenched; but no manure was added. The nitro-bacterine—that is, the preparation of the bacterium, *Rhizobium leguminosarum*, responsible for nodule formation—was presented by Professor Bottomley.

The results, as judged by the yield of marketable produce, indicate that neither steeping the seed in nitro-bacterine nor watering the soil therewith effects any increase in the crop. Indeed, the highest yield was obtained from a plot which was sown with uninoculated seed and watered with well water.

A comparison of the yields from the inoculated and uninoculated plots gave the following average results:—

Plots inoculated once: produce, 787 grams.

Plots inoculated twice: produce, 727 grams.

Plots uninoculated: produce, 782 grams.

Attempts to increase the yield of non-leguminous crops by the use of nitro-bacterine gave similar negative results.

Putting all the experimental evidence together, we are driven to the conclusion that the nodule bacterium is so widely distributed in the soil of this country that inoculation of sown seed takes place inevitably, and that, therefore, the artificial inoculation of seed with cultures of the nodule organism is a work of supererogation.

OUR SUPPLEMENTARY ILLUSTRATION shows the beautiful exhibit of Alpine and hardy plants staged by Sir EVERARD HAMBRO at the Royal Horticultural Society's exhibition on March 8. The display was a remarkable one from many points of view; it was of a very extensive character, arranged with consummate skill, composed, in the main, of rare and choice species, and was an object-lesson in high culture. Some of the examples were considered amongst the finest ever seen, testifying to the skill of Mr. J. GRANFIELD, the gardener at Hayes Place. One magnificent pan of *Saxifraga Boydii* (see fig. 108) received a Cultural Commendation from the Floral Committee. The background was composed of *Azalea amara*, *Rhododendron præcox*, *Polygonatum*, and taller-growing bulbous plants, such as *Narcissi*. The display was especially rich in *Primulas* and *Saxifragas*. There were also many *Androsaces*, *Shortia uniflora grandiflora*, *Ericas* in variety, with *Muscarias*, *Chinodoxas*, *Squills*, and other spring bulbous plants. A list of the more important species will be found in the report of the show, p. 171.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of the Society will take place on Tuesday, April 19. At 3 p.m. a lecture on "The Wild Flowers of the West of Ireland" will be delivered by Mr. R. LLOYD PRAEGER, B.E., B.A., M.R.I.A.

"THE BOTANICAL MAGAZINE."—The issue for April contains illustrations and descriptions of the following plants:—

TYPHONODORUM LINDLEYANUM, tab. 8307.—This is one of the giant Aroids, an old species described by Schott in 1857. The plant is a native of Madagascar, where it grows in water and marshy places. In Kew Gardens, it finds genial conditions in one of the exotic plant houses, planted in a bed of mud in company with the Papyrus. The spathe is yellow on both faces, and the spadix at the long, upper, sterile portion is orange-yellow. It is an evergreen species, the handsome leaves being of sagittate form.

SAXIFRAGA GRISEBACHII, tab. 8308.—This is one of the red-flowered *Saxifragas* described by Mr. W. IRVING in *Gardeners' Chronicle*, September 18, 1909, p. 195, where also it is figured.

RHODODENDRON HARROVIANUM, tab. 8309.—One of the many new plants discovered by WILSON whilst collecting for Messrs. JAS. VEITCH & SONS in China. The species was first described by Mr. W. BOTTING HEMSLEY in these pages (see *Gardeners' Chronicle*, January 1, 1910, p. 4). The flowers are violet-purple, with a few yellowish blotches on the upper lobes.

DIPelta FLORIBUNDA, tab. 8310.—The *Dipelta*s are flowering shrubs somewhat resembling the *Diervillas*. Mr. W. BOTTING HEMSLEY reviewed the Genus *Dipelta* in *Gardeners' Chronicle*, August 8, 1908, p. 101, when a figure of *Dipelta ventricosa* was given. *Dipelta floribunda* was illustrated in these pages July 6, 1907, fig. 1, from a drawing made by Mr. HERMANN SPOONER, who also wrote the accompanying note. The species was introduced from China by Messrs. JAS. VEITCH & SONS, through their collector, Mr. E. H. WILSON.

CORNUS NUTTALLII, tab. 8311.—This is described as the noblest of the *Cornels*. It is met with on the Pacific coast of North America over a fairly wide range. There it forms a moderately large tree, sometimes 100 feet high. But in this country it will probably form a useful subject for the back of the shrubbery, for a specimen which fruited in Mr. CHAMBERS's garden at Haslemere was not more than 15 feet in height. The bracts are very broad and tinged with yellow, the involucre is, at times, 6 inches across. It has long been known to science, the first botanist to discover the tree being Mr. DAVID DOUGLAS in 1826.

LINNEAN SOCIETY.—The next meeting will be held on Thursday, April 21, when the following papers will be read:—Miss M. G. SYKES, "The Seedling and Adult Anatomy of *Welwitschia mirabilis*;" Prof. P. STEIN, "Anthomyiæ, auf den Seychellen gesammelt;" Dr. MALCOLM BURR, F.L.S., "The Dermaptera of the Seychelles;" Dr. J. J. TESCH, "The Pteropoda and Heteropoda collected by the PERCY SLADEN Trust Expedition in the Indian Ocean;" Dr. G. ENDERLEIN, "Die Pilzmücken Fauna der Seychellen."

NATIONAL AURICULA AND PRIMULA SOCIETY (MIDLAND SECTION).—The 11th annual exhibition will be held in the Botanical Gardens, Edgbaston, Birmingham, on Wednesday and Thursday, May 4, 5. The Society's Silver Medal and the "Brookes" Silver Medal are offered to local growers, the former to the exhibitor gaining the highest number of points for Show varieties in certain classes, and the latter to the exhibitor gaining the greatest number of points in the Alpine and seedling classes. Silver and Bronze Medals are also offered by the Birmingham Botanical and Horticultural Society. The secretary is Mr. TOM J. STEVENS, 77, Jakeman Road, Cannon Hill, Birmingham.

BUENOS AIRES EXHIBITION.—The Board of Agriculture and Fisheries, acting in conjunction with the Board of Trade and a committee of leading agriculturists, are sending to the International Exhibition which opens at Buenos Aires in June next, an exhibit consisting of photographs, charts and diagrams illustrating the work of the agricultural colleges, illustrations and descriptions of the various breeds of British live stock, and specimens of the various cereals and other farm seeds produced in this country. The Board have appointed Senor DON MIGUEL DE HOZ to be an Honorary Commissioner to represent the Board at the exhibition.

HEXHAM FRUIT SHOW AND CONGRESS.—We have already given some particulars of this special exhibition, which is confined to growers in the counties of Northumberland, Durham, Cumberland and Westmorland. The schedule, now before us, consists of 48 classes, and is divided into six sections:—(A) Nurserymen; (B) Market Growers; (C) Open Classes; (D) Bottled Fruits; (E) County Council Exhibits; (F) Open to all except nurserymen and market gardeners. The deputation from the Royal Horticultural Society will be empowered to give medals and other awards, which will serve as the prizes in the nurserymen's classes. Provision will be made for competitors at a distance to have their fruits staged for them, provided that a week's notice be given. The show will open on October 20, and remain open for three days. On each day papers will be read, the subjects including "Fruit Storage and the Bottling of Fruit," "The Best Hardy Fruits for the North of England, the best varieties of the same, and the best Stocks," "Enemies to Fruit Culture," "Fruit Pests and their Treatment," "Orchard Heating," "Intensive Culture and Bees as a Factor in Fruit Culture," "Co-operation in the Marketing of Produce," and "Fruit Bottling." On Friday, October 21, a demonstration of spraying fruit trees and the use of smudge fires will be given. The Scottish Horticultural Association is sending two representatives as judges, Mr. JAMES WHYTECK and Mr. W. H. MASSEE. The general secretary is Rev. J. BERNARD HALL, Dalston, Cumberland.

FLORIFEROUS HYACINTH.—Messrs. CARTER PAGE & Co., London Wall, have brought to our notice a plant of Hyacinth "Moreno," bearing 12 spikes with more than 250 flowers.

VANDA CÆRULEA.—Lieut-Colonel RIPPON gives, in the March number of the R.H.S. *Journal* of the present year, a brief account of the situations occupied in the South Shan States by *Vanda cærulea*. At Kalan it occurs on trees from 10 to 40 feet from the ground. The roots, which grow close to the bark of the tree, appear to prefer the shade, but the flower-spike pushes out to the light between the foliage of the host-plant. Lieut-Colonel RIPPON suggests that various fleshy-rooted Orchids suffer in this country from their roots being confined and (generally) kept wet. At Kalan, *Vanda cærulea* grows to perfection when tied to the trunk of a tree or to a thick branch (dead or alive).

THE GERMAN DAHLIA SOCIETY proposes to hold an exhibition of Dahlias at Liegnitz from August 14 to September 11 of this year. In the programme of the exhibition, which has just reached us, it is pointed out, that this is the first exhibition of Dahlias which has been held in Eastern Germany. The society is also conducting trials in addition to those carried out in

was 32,000, and the number filled 20,000. It is too early yet to form an opinion as to the value of the Labour Exchanges, but if the above figures indicate that employment was found for 20,000 men who, without the exchanges, would have been unemployed, they point to success of the attempt to find work for men who want work. The problem which will remain is to make those work who do not want to work.

SPADE WORK.—Under the title of "A Suggestion for Local Show Committees," a letter appears in the *Journal* of the R.H.S. for March, 1910, from the pen of Mr. THOMAS CANNING, of Liscard, Cheshire, suggesting that digging competitions by teams of 11 a side might prove an attraction in local shows, and would undoubtedly help to demonstrate the importance of the spade in horticulture. In a vigorous passage, Mr. CANNING declares:—"Old as I am (and I shall soon reach my 80th year), I would make bold to enter one of these competitions myself, and would undertake at least (if I could not win a prize) to dig over my portion of 110 square yards with a



FIG. 108.—*AXIFRAGA* × *BOYDII* AS SHOWN BY SIR EVERARD HAMBRO.
(See also Supplementary Illustration.)

the gardens at Frankfurt-a-M. Plants or roots for the exhibition may be sent to Mr. S. LANGNER, Liegnitz, Germany. A Rose show will also be held in the same town from June 25 to July 10, and also at the time of the Dahlia exhibition.

LABOUR EXCHANGES.—The information published by the President of the Board of Trade on the results of the first six weeks' working of the Labour Exchanges affords considerable information and food for thought. During this period, 100 exchanges were at work (20 of this number for only part of the time). The total registrations were 270,000, of which number less than half (104,000) are on the "live" register—that is, consist of the names of those who register once a week. Thus, apparently, 100,000 registered once and then gave it up. How far this is due to discouragement at failure to find employment, and how far to laziness on the part of labour-shirkers, it is, of course, impossible to say. The number of situations offered by employers

10-inch spade in one hour." Could such competitions be organised, Mr. CANNING is convinced—and no one will gainsay him—that not only the land dug, but also the health of the competitors, would be ameliorated.

POISONED GRAIN.—A farmer was summoned recently for placing poisoned grain, calculated to destroy life, on ground at Ongar, and a chemist who dressed the grain with a preparation of strychnine was summoned likewise for aiding and abetting. The defendant was seen, it appears, to place grain on his land, and, subsequently, partridges and rooks were found dead on the ground. Analysis proved that both grain and birds contained strychnine. The defendant urged that he had to do something to keep the birds from his crops, and that he was unable to get boys for the purpose of scaring them. The chemist stated that he understood that the grain was for use in the garden, to keep off sparrows. The defendants were fined 20s. and costs.

FLORAL DECORATIONS AT LEEDS.—In connection with the municipal annual ball, the Leeds Town Hall was arranged with flowers and plants by Mr. A. J. ALLSOP, the city parks superintendent. The scheme took the form of a replica of Towerhurst, the residence of the Lord Mayor, PENROSE-GREEN, Esq. The house was reproduced amid flowering rambler Roses and greenery. The terrace wall, with vases of Pelargoniums on white pedestals and trellis-work, interwoven with rambling Roses, produced a charming effect. The main corridors leading to the Victoria Hall were a continuous bower of Roses, trained naturally and with admirable taste over rustic arches. The yellow blooms of Laburnums in mounds at intervals formed a pretty contrast with a background of white and pink Roses. The whole area of the spacious hall was skilfully converted into a charming garden with a wealth of spring and summer flowers.

CODLIN MOTH.—In an article published in *Le Pomologie Française* for 1909, E. DURAND recommends the use of bands of thick muslin for combatting this pest. Fixed about the trees in June, the bands serve to trap the caterpillars about to change into chrysalides. Arsenical spraying proved very successful: of the Apples on the sprayed trees, only 4 per cent. were worm-eaten, against 32 per cent. on the unsprayed trees.

PUBLICATIONS RECEIVED.—*Transactions of the Scottish Horticultural Association.* (Edinburgh: Printed for the Association by M'Farlane & Erskine.) Price to non-members, 1s.—*The Journal of the British Gardeners' Association*, April, 1910.—*The Unheated Greenhouse*, by E. J. Castle. One and All Garden Books. (London: Agricultural and Horticultural Association, 92, Long Acre, W.C.)—*The Social Calendar for 1910*, by Mrs. Hugh Adams and Edith A. Browne. (London: Adam and Charles Black.) Price 2s. 6d. net.

UNCOMMON WALL PLANTS.

THERE are many species and varieties of trees and shrubs suitable for planting against walls in the open, which are rarely found in gardens. The list given below provides greater variety than is usually found, and, although all the plants enumerated may not succeed in certain localities, a trial will prove that most of them will grow and flower well. It does not matter greatly what aspect is afforded them, but, for preference, a wall facing south or west should be chosen.

Even with plants remarkable for the richness of their autumn tints, it is surprising how beautiful the foliage will appear in autumn even in specimens growing on a north or west wall. For example, the leaves of *Ampelopsis Veitchii* and *Rhus Toxicodendron* have as much brilliancy when growing in a north or westerly site as in a southern one.

DECIDUOUS SPECIES.

The deciduous kinds may be considered first. Of these, *Actinidia callosa* is a rapidly-growing subject, with heart-shaped leaves, which change to a deep golden hue in the autumn. *Akebia quinata* is much more suitable for planting out-of-doors than is generally believed. An eastern aspect suits it capitally. A wall plant of this species, with properly-matured branches and spurs—these latter formed by repeated pinching of the current season's shoots to a single bud at their base—will furnish a mass of purple-coloured, fragrant blossoms. Too often this climber is a tangled mass of shoots, from which a few flowers only are produced, owing to crowding preventing the proper maturation of the growths. *Polygonum baldschuanicum* is generally treated as a pillar plant, but no plant is better suited for quickly covering an unsightly

wall or fence, especially if the aspect be a southern one. *Solanum jasminoides* will succeed admirably against a south wall in the southern counties, growing vigorously and flowering abundantly well into the autumn. *Bignonia radicans* and *B. grandiflora rubra* are two noble flowering plants that grow vigorously and blossom abundantly on high, south walls. *Rhus Toxicodendron*, commonly known as the Poison Oak, is worthy of a place in our list, on account of its beautiful leaves, which assume a bright crimson hue in the autumn. *Celastrus scandens*, with its round leaves and yellow flowers, the latter produced in June, is also an attractive subject. *Menispermum canadense* grows rapidly, and produces its green and yellow blossoms freely. *Hydrangea quercifolia*, with its Oak-like leaves, and dull, white flowers, is also deserving of mention. Where rapid growth and bold foliage are desired, *Aristolochia Sipho* should be included. *Spiræa discolor* (syn. *ariæfolia*) will be considered by some an unsuitable plant to place against a wall, but its white plume-like blossoms are particularly effective in such situations, its green foliage throwing the blooms into greater relief. A judicious thinning of the branches—simply removing the weaker ones—will suffice to keep the plant in order for many years. Pomegranates against a south wall grow rapidly, and, when laden with the brilliant scarlet blossoms in September, make a bright display. *Cydonias* are not nearly so commonly employed as wall climbers as their merits warrant. They grow freely and flower especially early when planted against a wall. *C. japonica atro-coccinea* and *C. j. Gaujardii* are desirable varieties. *Forsythia suspensa* is a suitable plant for a wall, although many will prefer it as a bush in the shrubbery or on the lawn. *Cotoneaster Simonsii* is especially attractive at this season, by reason of its brilliantly-coloured berries. That the plant is deciduous may be a defect, but when the shoots are allowed to grow rather thickly, the mass of berries which it produces compensates somewhat for this fault.

EVERGREEN SPECIES.

Rosemary is a good plant for covering walls 10 feet high. An abundance of blossoms, too, is obtained from vigorous specimens growing against a south wall. *Euonymus japonicus variegatus* is usually classed as a subject for a dwarf wall, but there is no difficulty in producing plants 15 feet high. When thickly clothed with its golden leafage, and especially on a southern exposure, this *Euonymus* is distinctly attractive. *E. j. radicans* will grow as high as 20 feet, and with its silvery foliage is a very pleasing wall plant. Not many plants will grow under a verandah, but this *Euonymus* is suitable for such a position. *Ilex integra* (syn. *Symplocos japonica*) is much like the common evergreen Oak in its dark green leaves. It grows freely, and will quickly cover a bare wall. *Buddleia variabilis Veitchii* is not often employed as a wall plant, but it is admirably adapted for that purpose or for covering a trellis or screen. *Cistus ladaniferus* (Gum cistus) is one of the most freely flowering subjects when grown as a bush at the foot of a south wall. The branches must not be pruned too freely. *Cotoneaster microphylla* is not only suitable for covering a low wall or fence, but is equally valuable for planting against a wall 15 feet high. The plant is a beautiful object when clothed during the autumn and winter with its bright red berries and dark green leaves. *Griselinia littoralis*, with its Privet-like leaves, grows densely, yet quickly, in a northern aspect. As few other plants do well in such situations, it is all the more valuable. *Lardizabala biterinata* grows rapidly and is well suited for covering high walls or trellises. *Olearia macrodonta* is generally seen as a bush in the shrubbery, but it is quite suitable for a wall plant. Its Holly-like leaves and white blossoms are both pleasing. *Photinia serrulata* has Magnolia-like

leaves. Its branches quickly cover a large surface. In the spring the new shoots are tinted with red, thus giving the plant a very attractive appearance. *Fabiana imbricata*, in many cases, succeeds better against a south wall than it does in the open. The pure white, Heath-like blossoms are displayed more profusely in specimens on walls. *Colletia cruciata* is a much better plant for covering a low wall than many persons imagine. *Carpenteria californica* is one of the most showy subjects for a south wall; its pure white, highly-fragrant blossoms are produced in clusters. Those who wish for a rapid-growing climber with silvery leaves would do well to plant *Elæagnus umbellata* (syn. *japonica*) *alba marginata*. *Pittosporum Mayi* also grows quickly, the growth reaching a height of 10 feet. As a bush-like climber it has a pleasing effect, with its dark stems and pale green leaves. *E. Molyneux*.

PÆONIA MOUTAN.

WHY does this imperial shrub still linger under a cloud? It is invincibly hardy, and even easier to grow than most hardy shrubs. Yet it is usually spoken of with suspicion, and attempted with fear and trembling. Of course, to me "Pæonia Moutan" means the Japanese varieties, and the Japanese varieties only. The European sorts exist simply to point the sad comparison between Oriental exquisiteness and European barbarism. In my long border of Moutans I have two good European sorts; poor things, of obese dowdiness when the others are a blaze of loose-petalled glory! Only *Gladiolus* in the garden, I think, has such a range of pure and delicate colours as these Japanese Moutans, ranging as they do from the most intense blood-crimson and sunlit scarlet through every shade of salmon, rose, and cherry, to the most filmy, pearly pallors, which ultimately pass into stainless white. The flowers are of gigantic size, too, loose and wild of outline, the perfection of nobility and splendour. To set them off, these Japanese Moutans have developed a wonderful foliage all to themselves. It is ample, spreading and audacious; its colours designed to suit the flowers. Thus a bloom of vindictive scarlet will have leaves of a dark, metallic bronze, while a rose-pink neighbour will show foliage of a sharp apple-green.

With regard to the culture of these Moutans, it must be owned that, being sent out on stocks of Moutan-type, they are at first liable to send up reversionary suckers which ultimately strangle the graft. But this is only at first; watch them for two seasons after planting, and remove any suckers you may see. After that you will have no further trouble; as the plant gets established it develops sufficient strength in its own personality, so to speak, to resist all the base promptings of its lower Moutan nature, and it is the rarest thing to find any attempt at reversion from the third year onwards, from which point, of course, each season gives you an increasing reward in a lavish glory that is really beyond expression. With respect to position I must confess that I think far too much unnecessary fuss is made. So long as Moutan has rich soil, and is not overshadowed, I do not think there is any further consideration. At least, here, in an odious, blustering climate, damp and dark and chilly, Moutan has succeeded gorgeously wherever I have put it. The European forms, perhaps, may shoot prematurely, and subsequently suffer from early frosts if planted in the sun. All I can say is that my Japanese Moutans have no such fad; whether in sun or shade they bear the trials of winter and the temptations of spring without wincing; either they remain dormant until it is safe to emerge, or else, if they do shoot, their tender growths seem immune to frost. During a period when there were 29° of frost, I have watched many of my Moutans with young growths 4 inches long or so (while their next-door neighbours probably

were in a condition of brown and decent dormancy), but not one of these precocities suffered. Finally, beyond attention to suckers in their first two years, and perhaps an annual mulch, these Japanese Moutans, established in good soil, ask nothing more than to be left alone for ever, while they grow steadily on into miracles of generous magnificence. *Reginald Farrar.*

THE WEST INDIES.

CYNOMETRA TRINITENSIS.—Where tropical shade trees are required, this species can be recommended for pastures, lawns, public squares and similar places. It is a dense-foliaged tree, and, as such, is enabled to cut off entirely the hot sun's rays and thus afford a perfect shade. It may be seen flowering during September and October in the Government House Grounds at Trinidad. The small blossoms are white throughout, except for the pale-green ovary and the yellow anthers. The flowers are bunched together in the axils of the leaves, and, when seen upon the tree, look like white streamers. The leaves, which are divided down to the short petiole into two halves, have their upper surfaces of a dark, shiny green. The fruits are globular and one-seeded. The trunk is short, permitting the extremities of the boughs to hang close to the ground. These, for convenience sake, are, at Government House, kept trimmed clear of headway. Quite small plants flower. The tree is recorded as a native of this island.

WALLICHIA DISTICHA.—This Palm is at the Experiment Station, St. Clair, both flowering and fruiting. The trunk is clothed with the remnants of the old leaf stalks, moss and Fern growths. There are nine leaves present, four on either side, and an upright, small, central one. In addition to the new bunch of flowers, there are hanging three old bare inflorescences, one of which retains a few seed-remnants. The inflorescence is pendant, and consists of a great number of flower-bearing stems, the whole forming itself into a kind of cone-shaped mass of blossoms, which are darkly coloured. The leaflets are spotted with yellow, the tips looking more or less as though they had been scorched. Having regard to the jagged trunk, shabby leaves, and sombre-coloured inflorescence, this particular specimen cannot be regarded as ornamental. Yet, apparently, there is nothing wrong with the conditions, added to which it is sheltered from high winds and blazing sunshine. The height of the Palm is 20 feet. *W. E. Broadway, Tobago, W. Indies.*

ARISTOLOCHIA GIGAS VAR. STURTEVANTII.

THIS remarkable tropical plant (see fig. 109) is known by the natives of Ceylon as the Giant Fly-catching plant. The perianth of the flower consists of a large pouch, with a huge, saucer-like expansion which ends in a long, pendant tail about 2 to 2½ feet in length. Flies are attracted, especially in the morning, in great numbers to the flower, owing to its offensive carrion-like odour. They enter by the neck of the pouch, which, being lined with hairs pointing inwards, effectively prevents their escape. The flower begins to collapse at dusk, and a day later the flies, which appear none the worse for their short captivity, are released. The flower meantime provides nectar for its visitors, which in turn effect its pollination. So strong is the odour emitted by this extraordinary flower that even dogs are sometimes deceived and attracted by the smell. The roots of different species of *Aristolochia* are esteemed in most tropical countries as a cure for snake bites. The natives of Central America are so convinced of the power of this root, not only for curing, but also for preventing snake bites and for stupefying and killing them, that they always carry a piece of it with them when travelling in the bush. Our illustration shows a plant climbing over a wire archway in Ceylon. *M.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

BANK HOLIDAYS AND FLOWER SHOWS.—Those employés of the numerous nurserymen and florists who exhibit regularly at the fortnightly exhibitions held in the Royal Horticultural Hall, Westminster, doubtless congratulated themselves on their good fortune in having no show to follow Easter Monday. They will find, however, that there are shows on the days immediately following the Whitsun and August Bank Holidays. The first-named day precedes by a week only the great exhibition in the Temple Gardens, and will, for that reason, probably not be a large one. The show on August 2 might have been avoided

high. I do not know if it is usual for this tree to bear fertile seed in the British Isles. *D. McDonald, Glenveagh Castle Gardens, Churchill, Co. Donegal.*

VIOLET CULTURE.—In the issue for March 26, p. 194, is a cultural memorandum on growing Violets in frames. The method advocated is, in my opinion, wrong in several important points. There is a great difference between growing double and growing single varieties. I find the best mode of cultivating the double kinds is to plant them on well-manured land, one foot apart both ways and exposed to full sunshine. If shaded they make soft foliage and are almost certain to succumb to the Violet disease, and also to throw less flowers. The most important point in the summer-time is to



FIG. 109.—ARISTOLOCHIA GIGAS VARIETY STURTEVANTII IN A CEYLON GARDEN.

had two exhibitions only been arranged for August instead of three, especially as the Holland Park Show in July has two days allotted to it, and there are also the Sweet Pea and Carnation Societies' shows, which, added with the one ordinary meeting, make six days in July on which Fellows can use their tickets. *A.*

CORDYLINAE AUSTRALIS SEEDING.—During the summer and autumn of 1909 three plants of *Cordylina australis* growing in these gardens flowered and developed seeds. Some of the seed was sown in pots under glass in November, but showed no signs of germinating till the end of January. After that date the seedlings appeared, and the young plants are now about 2 inches

sprinkle them with clear water every evening when there has been no rain during the day. Runners should be removed, but there is nothing gained by removing the early flower-buds, in fact the blooms are often very useful during September. I find it is not a good plan to keep the plants close to the glass after planting in the frames. My practice is to use frames 18 inches deep at the back and 12 inches in front, putting a layer of about 6 inches of soil in the frame. The plants at the back being on the same level as those in front, sufficient air space is allowed to keep the leaves from damping; they may also be watered more quickly and easily by this system of planting. Single roots should be planted 15 inches apart, in beds the same size as the frames,

which should be placed over them in the second week of October, as Violets are seldom satisfactory if lifted. These are the most important points with respect to which the writer of the note referred to is in error. *T. Mathews, Ladygrove Nurseries, Abingdon.*

FLORA OF THE MEIJE.—The note on Prof. Farmer's lecture at Wimbledon (see p. 234) on Alpine plants, states that some of the finest specimens were gathered at the very summit of La Meije, "some 15,000 feet above sea-level." This should read 13,000 feet; the actual height of the highest or western point, for there are three summits, is 13,081 feet, or 3,987 metres. The photograph, from which the illustration is reproduced (see fig. 110), was taken from the top of the mountain where Dr. Farmer found various fine plants. Every one of those flowers had some such panorama for a setting, and they would look down upon every ridge and peak in the picture except the culminating mass of distant snow in the centre, which is 380 feet higher, and called the Pointe des Ecrins. It is the highest of the Dauphiné Alps, but considerably less difficult to ascend than the Meije, which is a very stiff climb. The photograph also shows an important feature of the Dauphiné mountains, viz., the remarkable way in which they are cut up into steep ridges and divided by deep valleys, into which descend

of the Royal Horticultural Society in promoting the organisation of a large committee as the controlling body of the proposed international horticultural exhibition in 1912, naturally leads up to the question important to all the Society's Fellows as to what part they are to play in the matter. The Council has, through its President, intimated the intention of giving a liberal contribution to the guarantee fund, which is, of course, very proper. But will that contribution be made subject to any condition as to the position of the Fellows in relation to the show when it is open? For several years the Royal Horticultural Society has organised two important exhibitions in London, those of the Temple and Holland Park. To these shows, which are great society functions as well as extraordinary displays of horticultural productions, all Fellows have had free access on all the days these exhibitions were open. This great privilege is doubtless one of the primary causes of the very large fellowship of the Society. It seems certain, however, that if this international exhibition is held in 1912, and probably about the middle of June, the ordinary May and July exhibitions of the Society cannot take place, for the excellent reason that those growers who exhibit must and would devote all their energies to the production of special effects for the international. Even the usual meetings at

country to artificially fertilise Melons; but in France, where, it will probably be agreed, the finest Melons in the world are produced, the custom is entirely unknown. I know a gardener in the North of England who last year had 200 Melons, which sold for a good price in one of the large markets, and not one of which was artificially fertilised. The gardener referred to, who has had many years' successful experience and possesses a very considerable knowledge of botany, maintains, contrary to the general belief, that Cucumbers, equally with Melons, need fertilisation before the fruit can develop, i.e., that all Cucumbers require to be fertilised. If he is wrong, it would be useful to have some explanation as to why growth of the fruit takes place without fertilisation in Cucumbers and not in Melons. I think it would be very valuable to have some further expression of opinion on the points raised. *N. H.*

ON RETARDING THE BLOOMING OF FRUIT TREES.

In his remarks on p. 203, concerning my previous note on this interesting subject, Mr. H. W. Ward seems to have overlooked the fact that Mr. Saul, as quoted by me, was referring to the period from the "end of February, when the trees are pruned and nailed," until the blossoms are open. I cannot date the commencement of the practice of unfastening the shoots of Peach and such-like trees so as to retard their blossoming. I knew of it over 25 years ago, and it was no new thing then, and it seems to me that we may reasonably infer that, if not during his time already a general practice, it is more than likely that so observant a man as Mr. Saul cannot have failed to have realised its advantages. In passing, I may remark that Mr. Ward's advocacy of allowing the young shoots to hang free from the walls may be improved upon by loosely bunching the shoots and tying them to stakes driven in the ground as far away from the walls as may be practicable, and so removing them further from the area of heat radiation. As I tried to show, Mr. Saul's suggestion was to shade the trees and walls during the time which must elapse between the fastening of the shoots to the walls and the opening of their blossoms. This period, of course, occurs at a time when the sun is daily gaining in power. As to the comparative coldness of the winters of Persia and Florida, or the Cape, this seems to me to be immaterial, but it appears to be fairly certain that where the Peach thrives best out of doors, the winters are more constant than in this country. *Peach-grower* (p. 221) asks if it is necessary to protect Peach trees growing against walls out of doors against frost whilst in bloom. Although he admits that no convincing answer can be given, he evidently inclines to the opinion that it is not. At all events, the practice of protecting Peach trees whilst in bloom must be advisable, or so many of us would not, year after year, indulge in work which entails additional labour and expense. Personally, I would never protect Peach trees against frost alone, for I am sure the damage done to the blooms on unprotected trees is caused by cold, piercing winds. Unfortunately, instances such as those cited by *Peach-grower* have no real value; so much depends on aspect, exposure, and soil. Even the amount of the rainfall, which varies surprisingly within a small area, has an important bearing on the subject. A gardener cannot afford to run the slightest risk of failure, so it behoves him to use all the means at his disposal to command success. It must not be overlooked that protected fruit trees, which are more or less screened from wind and insects, require their blossoms to be more diligently hand-fertilised than do those on trees which are unprotected. *A. C. Bartlett, Pen-carrow Gardens, Cornwall.*

PROTECTING PEACH BLOOM.—*Peach Grower* makes (p. 221) some interesting remarks on protecting Peach bloom. He says: "At a garden over which I had charge for a good many years we had a long outside wall devoted to the growth of Peaches and Nectarines, and a large proportion of these walls were effectively protected by glass copings and roller blinds in the best and most orthodox fashion." Adding: "In the same garden, a little distance away, was another wall, devoted to the same purpose, which for many years received no protection, although it was rather more exposed to the inclemency of the weather than were the protected walls." Yet



FIG. 110.—POINTE DES ECRINS, FROM THE MEIJE; HEIGHT, 13,000 FEET.
(DAUPHINÉ ALPS.)

literally "hanging glaciers." This peculiarity can be seen very easily by walking to the top of the Col du Galibier (8,720 feet), over which a carriage road, the second highest in Europe, passes from St. Michel de Maurienne, on the railway between Chambéry and Mt. Cenis, to Lautaret and Briançon. The Col du Galibier, and the whole district, is extremely rich in plants; and in one day in August, 1907, I gathered no fewer than 185 species and varieties above 8,000 feet on that pass alone. Those who are interested in the flora of the very highest peaks in the Alps, such as the Matterhorn, Monte Rosa, &c., should consult the pamphlets of Prof. Lino Vaccari, and particularly his *Flora Caeuminale della valle d'Aosta* (Firenze, 1901) and *La Vegetazione della Grivola*, 3,969 metres (Torino, 1906); no one has paid more attention to the high flora of the Alps than Vaccari. In the former work are several interesting tables, showing that, whereas about 200 species are found above 3,000 metres, only five reach 4,200 metres, or above the highest summit of the Meije. These five, found on the Matterhorn, include *Ranunculus glacialis*, *Saxifraga planifolia*, *S. biflora*, and *Androsace glacialis*. *H. S. Thompson.*

THE PROPOSED INTERNATIONAL EXHIBITION.—The prominent part taken by the Council

Vincent Square would suffer to some extent for a time. In such case, what would be the nature of the exhibition compensation offered to Fellows in place of their usual exhibitions? I have no knowledge as to how Members of the R.H.S. were dealt with in 1866, but the case now is so very different, arising from the immense number of Fellows and the great exhibition advantages they have so long enjoyed. Therefore, will the Council, apart from any contribution, however liberal, to the guarantee fund, offer the exhibition committee, when duly formed, a big sum to enable their Fellows' tickets to be available for the international exhibition, as they now are for the Temple and Holland Park shows? Or will they, for a lesser sum, contract to grant each Fellow one ticket of admission only, to be given up on entrance, or will they ask for a privilege for Fellows to obtain tickets of admission at half-price? These are problems for the Council to solve. The exhibition is to be of two weeks' duration; that suffices to show that no other exhibition can be held just then. *A Fellow.*

FERTILISATION OF MELONS AND CUCUMBERS. I was much interested in the remarks on this subject in the "Answers to Correspondents" column, p. 208. It is, as you say, an almost invariable custom with gardeners in this

Peach Grower states the crops the trees bore on this wall were as good as were the crops on the protected trees, and failure was quite as "infrequent." Your correspondent then adds "This is an important point, and well worth clearing up if possible," as, he proceeds, "the covering-up business entails the loss of much valuable time, and is adopted at considerable cost." This being the opinion of *Peach Grower*, I wonder why, with his several years' experience of the non-protected trees yielding annually as satisfactory crops as the protected trees did, he continued to waste "valuable time" in the covering-up of his trees at night whilst in bloom? My experience with respect to the protection and non-protection of Peach and Nectarine trees at night while in flower is decidedly opposed to that expressed by *Peach Grower*. For several years I had charge of a garden in which there were about 1,700 yards of brick walls from 9 to 12 feet high, devoted to the growth of choice fruit trees, including about 250 yards run furnished from base to summit with Peach and Nectarine trees, which were all protected with canvas while in flower in the manner recommended in the *Gardeners' Chronicle* for February 26 last. The result was every year during the 25 years that I had charge of them the trees bore heavy crops of fruit, the fruit having set so thickly as to necessitate severe thinning annually. There were two or three isolated Peach trees growing on Plum walls which received no protection while in flower. Most years these trees bore light crops of fruit, and some years they bore very few fruits indeed, but these were, as might be expected, extra large in size. I have known cases in which carelessly applied protection did more harm than good by being fixed in such a manner that the wind caused the canvas to flap against the lower parts of the trees, thereby knocking off not only fruit-buds, but also wood-buds. H. W. Ward.

—The advice given by Mr. H. W. Ward on the simple method of protecting the blooms of Peach and Nectarine trees is sound and practical. Personal observation soon decides the best and safest method to adopt in dealing with the various branches of gardening if the desired object is to be obtained, especially in low-lying gardens resting upon clay. For instance, on the morning of the 3rd inst. we registered 13° of frost. I was glad to know our Peach trees were well protected with a double screen of fish netting, and an extra covering had been added owing to the cold nights. Even with that protection, on examining the trees after the sun had been shining on them all day, I found that many of the flowers on the lower branches were damaged. All unprotected Plum blossom on south and west walls was ruined. I have seen stone fruits when of the size of Peas blackened as the result of exposure. In my case the protection of the trees was warranted by the result. H. Juniper, Dyrham Park Gardens, Barnet.

PRUNING NEWLY-PLANTED FRUIT TREES.—

In a reply given to a correspondent at p. 208 on the above subject, you state very briefly, but clearly, the reasons given for different treatment by diverse schools of growers. In the recent issue of the *Royal Horticultural Society's Journal*, Mr. J. Landsell, of Worcester, deals with the subject in an admirable paper, yet somehow seems to leave the matter open. He says, that in trees lifted for replanting, when the roots are pruned, not more than one-third are left. Surely that is an incorrect statement. In pruning roots, some portion of the original thong-like or larger roots may be cut off, but who would cut away fibrous roots from such trees? But when a writer sets out to discuss the wisdom or otherwise of pruning newly-planted trees, with the hypothesis that roots are so severely cut away at the first, it is easy to understand the difficulty he finds in coming to an exact conclusion as to whether the result of pruning is good or not. The object of such pruning is first, to cause growths to be produced at the base rather than ends of the shoots, and, second, to reduce the number of leaf-buds on the trees, thus compelling those left to break strongly, and to cause the roots to create good, active growth on their part also. Where newly-planted trees are left unpruned, the stocks of stored sap in the stems have to nourish so many leaf-buds that growth is weak and root action is correspondingly sluggish. One wonders that there is no experimental fruit garden, under impartial

and unbiassed control, where simple experiments in relation to pruning early after planting could be conducted in such a way as to leave no further doubt on the subject. Not only should trees of a similar kind or variety be planted both in autumn and in spring, but pruning and non-pruning should be equally tested in both cases. Nurserymen who are forced to transplant many fruit trees in spring should be able to give some authoritative information on this subject. These, I take it for granted, whether transplanted yearly or every two or more years in their nursery quarters, have to be pruned fairly hard to keep the tree heads close at home. Mr. Landsell attaches considerable importance to the number of leaves a newly-planted tree may produce in the following year, but whilst much may depend upon the leaf area on a pruned or an unpruned tree, very much more must depend on the activity of the roots. Whereas the leaves are visible the roots are not, but it is of the first importance in all newly-planted trees that they should get well established in the first season. What would be the effect on Raspberries, Currants, Gooseberries or Roses, for instance, were there no pruning exercised on them the year after planting! One may say the same of vines and many other plants. My belief is that the great weight of experience and of practice is in favour of pruning. That operation need not be done directly after planting. It is better to let the soil get somewhat solidified first, but all the same it should not be left until the sap has become active. March is, as a rule, quite late enough for such pruning, but in the case of established trees the needful pruning must be done earlier. A. D.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 5.—*Present*: Mr. E. A. Bowles, M.A., F.E.S., F.L.S. (in the Chair), Professor G. S. Boulger, F.L.S., Dr. A. B. Rendle, M.A., F.R.S., Messrs. J. Fraser, F.L.S., J. W. Odell, L. Crawshaw, W. Arkwright, D.L., J. T. Bennett-Poë, M.A., E. M. Holmes, F.L.S., A. Worsley, A. Rolfe, A.L.S., and F. J. Chittenden (hon. sec.).

Monacious Willow.—Mr. J. FRASER reported as follows on the specimen of *Salix cinerea*, bearing both male and female catkins, shown at the last meeting. In the female catkins the normal two stamens of the flowers were represented by two imperfect ovaries, the pedicels of which were 7 mm. to 8 mm. long, and corresponded with the two filaments, and the ovaries 3.5 mm. long, and corresponded with the anthers. The pistil was open on one side, so as to expose the two ovules, and was separable into two carpels, with a short style and undivided stigma to each. The ovule, without the funiculus, appeared perfect, except that the parachute was absent. Each of the two carpels had a short placenta near the base, each bearing one ovule, the placenta and ovule being marginal and exposed. Below the middle of the ovary were the two contiguous cells of the anther, about the normal length, but without pollen. In the abnormal male catkins the filaments were hairy at the base only, and were normal; the anther's cells sometimes three instead of four; the connective dilated between the cells and elongated above the anther, often separated into two and terminating in a stigma each, partly papillose, and capable of retaining pollen. The pollen grains were often smaller than those of normal flowers, and in very small quantity. Mr. CRAWSHAW exhibited drawings illustrating the aberrations, and pointed out that the branches usually bore flowers of one kind only; but in one case he found the flowers in some catkins on a branch differed from those in others.

Monacious Populus tremula.—Mr. J. FRASER showed catkins of *Populus tremula* containing both pistils and stamens, these being the last formed by the tree.

Many-flowered Tulip.—Rev. J. JACOB showed, on behalf of M. BONY, of Clermont-Ferrand, some pots of Tulip M. S. Mottet, bearing several flowers from a bulb and branching inflorescences. This character had been found to breed true in the seedlings, and the Committee recommended that a Certificate of Appreciation should be awarded to M. BONY in recognition of

his work in proving this transmission (see fig. in *Gardeners' Chronicle*, May 15, 1909, p. 317, fig. 137).

Callicoma serratifolia.—Sir DANIEL MORRIS, K.C.V.O., sent a dried specimen of this handsome tree, which he had seen growing in the Azores. It has serrate leaves, about 3 inches long, woolly below, and almost globular heads of flowers. A member of the family Saxifragaceæ, it is particularly remarkable in growing 50 feet to 60 feet tall. It is a native of Australia, where the early settlers called it "Black Wattle," a name usually associated with *Acacia decurrens*—quite a different thing; and another native name is "Native Beech." Its wood is said to have a reddish tint.

Chinese plants.—Mr. G. PAUL sent plants of *Ilex Pernyi* in flower (the flowers of this beautiful Chinese species prove to be hermaphrodite), *Osmanthus Delavayi*, with flowers about four times the size of those of *O. ilicifolius*, and reminding one of an *Escallonia*, and *Carriera calycina*, figured in *Rev. Hort.*, 1896, p. 498.

Opuntia in Queensland.—Professor HENSLOW sent the following communication which he had received from Surgeon-General GEO. HENDERSON, M.D., F.L.S., formerly Director of the Royal Botanic Gardens, Calcutta:—"In a communication to the *Royal Horticultural Society's Journal* for March, 1910, at p. 350, I see you notice the Prickly Pear in Queensland. In the Punjab, India, before annexation, about 1849, this plant was a pest, and covered many miles of country. Ringret Singh is said to have had out some of his regiments to cut it down; but that did no good, unless it were burned, for every bit of it rooted and produced more plants; but about 1845 the wild cochineal insect was introduced (by mistake, it is supposed, for the cultivated or domesticated one), and, as if by magic, it spread all over the province and destroyed the Prickly Pear, which has never given any trouble since. I can find few references to this matter in any books, but I find one letter from Sir Donald McLeod, then Mr. McLeod, Commissioner of Lucknow, at p. 265 of *Select Papers of Agri-Horticultural Society of Punjab*, 1868. The letter is dated December, 1852, and merely mentions the fact that 'an extraordinary influx of this insect (cochineal) almost exterminated the plant.' I lately wrote to Sir William MacGregor, Governor of Queensland, and told him about this. The cochineal could be easily introduced, for I took two pieces of Prickly Pear covered with the insect from Tenerife to New Zealand in 1883, simply stuck on to two nails in my cabin wall, and delivered them to Dr. Hector when I arrived. I find, in the book referred to, a few casual references to the disappearance of the plant from the Punjab, but nothing very definite. I know for certain that the plant had never given any trouble up to 1889, for I lived much in the Punjab."

SCOTTISH HORTICULTURAL.

APRIL 5.—The monthly meeting of this association was held at 5, St. Andrew Square, Edinburgh, on this date. Mr. Whytock presided, the company numbering 100. A paper was read by Mr. James Grieve, Redbraes, Edinburgh, on "The Rise and Progress of Gardening from the Earliest Period to the Present Time." Tracing the origin of the art of gardening from biblical times, Mr. Grieve noted the various developments through which it passed as it spread from east to west. Horticulture, he said, reached its high state of perfection under the Romans; after this it fell into decay, and, but for the monks, whose sacred calling protected them from violence, and whose secluded lives enabled them to devote time to horticultural pursuits, would have been almost forgotten. The progress of gardening in the countries of the west was then touched upon, and Mr. Grieve concluded an interesting paper with an account of its development in our own country.

The following exhibits were displayed:—Nine varieties of *Cineraria*, including "Feltham Beauty," and 50 varieties of Apple fruits, from Mr. WHYTOCK, Dalkeith; a number of varieties of *Polyanthus* and *Azalea* from Messrs. DUNN & Co., Rothesay; species and varieties of Alpine and other Primulas, from Mr. W. ROBERTSON, Pilrig House, Edinburgh; *Cineraria hybrida grandiflora* "Matador," from Mr. A. McANDIE, Inveresk Gate, Musselburgh; *Cyprinidium Schröderæ*, C. Lawrenceanum with twin flowers, and *Odontoglossum Pescatorei*, from Messrs.

JAMES GRIEVE & SONS, Edinburgh; a vase of Japanese Chrysanthemums, from Mr. JAS. HAMILTON, Eskhill, Musselburgh; flowers of *Richardia Elliotiana*, of a very deep yellow colour, from Mr. THOS. FORTUNE, Edinburgh; *Arisæma ringens*, from Mr. A. JOHNSTONE, Hay Lodge, Edinburgh; and forced Rhubarb, from the EDINBURGH DISTRESS COMMITTEE'S farm at Murieston, per Mr. CAIRNS.

Four new members were admitted.

The paper for the meeting on May 3 will be on "The Sense Organs of Plants," by Dr. W. G. Smith, Edinburgh and East of Scotland College of Agriculture.

BOURNEMOUTH HORTICULTURAL. SPRING EXHIBITION.

APRIL 5, 6.—The third annual spring flower-show of this society was opened by the Mayoress (Mrs. Walker Bridge), on this date, and continued the following day.

Taken as a whole, the exhibits were very good, and, both in quantity and quality, an improvement on previous years, the Narcissi being particularly fine. Two very pleasing miniature rock-gardens arranged by Mr. MAURICE PRITCHARD, of Christchurch (Gold Medal), and Messrs. HEATH & SON, of Cheltenham (Silver Medal). In the rockery from Christchurch, we noticed an extremely fine mass of the pure white *Primula nivalis*, and a remarkably good example of what is apparently a large white variety of *P. viscosa*. There were other Alpine Primulas, such as *P. cashmiriana*, *Riverslea* and *P. Sieboldii*, but the most beautiful was the English Primrose *Evelyn Arkwright*, that originated in Derbyshire. Its immense corolla; on downy stems are very handsome. *Viola gracilis* was observed, also *Saxifraga Bathoniensis*, *Adonis vernalis* (very large), and *Anemone nemorosa* purpurea.

Messrs. HEATH & SON's rockery was rather larger. Here again Primulas constituted a feature, particularly the yellow *Auricula* "Dusty Miller." Messrs. HEATH also showed the new *Saxifraga Bathoniensis*, with its blood-red petals, and *S. nivalis* from Scotland, with unusually developed heads of blossom, but this species is more rare than attractive. The yellow *Arabis utriculata* and the mauve *Crucifer*, *Parrya Menziesii*, looked very healthy; while the new *Corydalis spicarpa* has very large flowers, and those of *C. Wilsonii* are also noticeable. There were two unnamed varieties of *Fritillaria latifolia*, collected by Mr. H. J. ELWES (No. 8 and No. 12), and a good clump of *F. ruthenica*. Miss HOWES, of Burton Hardy Plant Nurseries, was awarded a Silver Medal for an exhibit of rock-garden plants.

A collection of Orchids shown by Messrs. J. CYPHER & SONS, of Cheltenham, received a Gold Medal, and Orchids from the Arcadia collection, exhibited by the Chairman of the Committee, G. H. ROLLS, Esq. (gr. Mr. W. Jones), were interesting. An exhibit of Orchids shown by Mr. T. W. PALMER was awarded the 1st prize in the competitive classes.

The extensive array of Cinerarias and Palms staged by Messrs. SUTTON & SONS received a Gold Medal, as did the floral designs of Mr. ROBT. CHAMBERLAIN, of Bournemouth, the vice-chairman of the committee; floral devices shown by Messrs. THURSTON & PRITCHARD's gained a Silver Medal. Mr. G. PURSEGLOVE was awarded a Gold Medal for a collection of miscellaneous plants. In the competitive classes, the best group of miscellaneous plants was staged by Messrs. G. WATTS & SONS, of Bournemouth, Mr. G. T. FENWICK (gr. Mr. H. Stark), and Mr. T. K. INGRAM, of Parkstone, respectively.

Among the exhibits of Narcissi, Messrs. ROBT. SYDENHAM, LTD., were awarded a Silver Medal for their various plants grown in moss fibre. The display comprised 22 kinds of Daffodils, including fine examples of *Horace*, *Home Spun*, *Blood Orange*, *C. J. Backhouse*, *Lord Roberts*, *King's Norton*, and *Lucifer*. Sir RANDOLF BAKER, Bart. (gr. Mr. A. E. Usher), was the most successful amateur exhibitor in the various classes for Narcissi, winning four 1st prizes. Among his best blooms were *Glory of Leiden*, *C. J. Backhouse*, *Queen of Spain*, *Kathleen Spurrel*, *Victoria*, *Mme. de Graaff*, and *Lulworth*. Other successful exhibitors of Daffodils were G. G. RUSSELL, Esq. (gr. Mr. H. Heath), Mrs. ORMOND (gr. Mr. C. Pearce), Mr. NORTHWAY, and Messrs. G. WATTS & SON.

LIVERPOOL HORTICULTURAL. (SPRING SHOW.)

APRIL 6, 7.—The spring show was held this year in the Corn Exchange, a spacious building and much lighter than the more elaborate St. George's Hall, where these shows have been held previously.

The exhibition was equal to the best of those that have preceded it. Amongst the special features may be mentioned the groups of Orchids and the displays of forced hardy plants.

In the class for six pots of hardy herbaceous plants, W. J. LOCKETT, Esq. (gr. Mr. E. R. Finch), staged some good specimens. Hyacinths were best shown by A. EARLE, Esq. (gr. Mr. T. Hitchman), Mrs. W. P. SINCLAIR (gr. Mr. J. V. Thompson), and Miss ROBINSON (gr. Mr. J. Nisbett). Mrs. SINCLAIR showed the finest Tulips of both double and single-flowered varieties. For 12 vases of Narcissi, the 1st prize was awarded to Drs. TISBALL and INGALL (gr. Mr. G. Osborne). The finest stove plant in bloom was adjudged to be a specimen of *Anthurium Andraeanum* exhibited by W. J. LOCKETT, Esq., and the best greenhouse plant in bloom was *Imantophyllum Princeps*, shown by F. S. TIMMIS, Esq. (gr. Mr. B. Cromwell). Amongst the Orchid exhibits, C. W. CARVER, Esq. (gr. Mr. W. Gignett), staged two excellent specimens of *Dendrobium Ainsworthii* and *D. nobile*; whilst in the class for two cool Orchids, T. HIGNETT, Esq., was placed 1st. W. TODD, Esq. (gr. Mr. Geo. Eaton), won in the class for one Orchid plant, with a magnificent plant of *Cymbidium Lowianum*, having 15 well-developed spikes. The 1st prize for three hardy forced plants was won by A. EARLE, Esq., with well-flowered Rambler Roses. In the Fern class, three exotic species—*Davallia filix-feris*, *D. Mooreana*, and *Dicksonia antarctica*—were best shown by Mr. G. EATON. The finest Azaleas were staged by Mr. TIMMIS, who won in the class for three specimens and also in that for a single plant. This gentleman also showed the finest hardy Rhododendron, having a beautiful specimen of *Pink Pearl*. The best greenhouse Rhododendron was shown by Mr. LOCKETT, and this gentleman had also some well-grown plants in the class for six forced hardy plants, being placed 1st. For three, two, and one Palm, respectively, Mr. THOMAS, Mr. OSBORNE, and Mr. F. ATKIN won the 1st prizes.

NON-COMPETITIVE EXHIBITS.—A Gold Medal was awarded to Messrs. MANSELL & HATCHER for an imposing group of Orchids. Medals were also awarded to Messrs. YOUNG, West Derby (Carnations); LISSADEL BULB FARM (Narcissus); Messrs. R. P. KER & SONS, Liverpool (Hippeastrums, Amaryllis); Mr. W. ROWLANDS, Childwall (Roses); Messrs. BARR & SONS, London (Daffodils); Messrs. HOGG & ROBERTSON, Ireland (bulbous flowers); and Messrs. CARTWRIGHT & GOODWIN, Kidderminster (Daffodils). Other exhibitors were Messrs. BEES, LTD., Mr. S. MORTIMER, Mr. H. MIDDLEHURST, Messrs. WOODWARD & Co., Messrs. T. DAVIES & Co., LIVERPOOL ORCHID CO., and Messrs. BAKERS, LTD.

BRISTOL AND DISTRICT GARDENERS'.

APRIL 7.—The fortnightly meeting was held on the above date. Mr. E. T. Parker presided. The subject for the evening was "Border Carnations," a paper on these plants being read by Mr. C. Wall, Bath. The paper contained practical hints about layering, planting out in beds, dis-budding, shading, and preparing the blooms for flower shows.

SCHEDULE RECEIVED.

Weybridge and District Horticultural Society's twelfth annual summer exhibition to be held at Oakfield, Weybridge, on Wednesday, July 13; and autumn show to be held in the Holstein Hall, Weybridge, on Wednesday, November 2. Secretary, Mr. T. Caryer, Springfield Villas, Weybridge.

The Richmond Royal Horse Show to be held on Friday and Saturday, June 17, 18, 1910, at Richmond, Surrey. Secretary, Mr. C. Capel Smith, 1, The Little Green, Richmond, Surrey.

Bath Floral Fete.—The floral fete, Rose, Begonia and Strawberry show and general summer exhibition will be held at Bath on Wednesday and Thursday, July 6, 7, 1910. Secretary, Mr. B. R. F. Pearson, 17, Argyle Street, Bath.

Massachusetts Horticultural Society, Boston, Mass., U.S.A.—An exhibition of Orchids and other plants will be held at the Horticultural Hall, Boston, on May 26, 27, 28, 29 and 30, 1910. Secretary, Mr. William P. Rich, Massachusetts Horticultural Society, 800, Massachusetts Avenue, Boston.

MARKETS.

COVENT GARDEN, April 13.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacia dealbata (mimosa), per doz. bunches...	8	0-10	Marguerites, p. dz. bunches white and yellow ...	3	0-4
Anemones, p. doz.	1	0-1	Mignonette, per dozen bunches	4	0-6
Azalea, Ghent, per bunch ...	0	6-0	Narcissus poeticus (Pheasant's Eye), per doz. bunches	1	0-2
— Fielder, p. dz.	2	0-3	— Solei d'Or ...	1	0-1
Bouvardia ...	4	0-6	Odontoglossum crispum, per dozen blooms	1	0-2
Carnations, p. doz. blooms, best American (var.)	2	0-3	Pelargoniums, shw., per doz. bchs.	4	0-6
Carola, and other special varieties	4	0-5	— Zonal, double scarlet...	4	0-6
— second size ...	1	6-2	Richardia africana (Calla), p. doz.	1	6-2
— smaller, per doz. bunches	12	0-18	Roses, 12 blooms, Niphetos ...	1	0-2
Camellias, per doz.	1	6-2	— Bridesmaid ...	2	0-3
Cattleyas, per doz. blooms	6	0-9	— C. Testout ...	2	0-3
Daffodils, best, per doz. bunches...	1	6-3	— Kaiserin A. Victoria ...	1	0-3
— seconds ...	1	6-2	— Capt. Hayward ...	2	0-3
— double, per dz. bunches	1	6-2	— C. Mermiet ...	1	6-2
Encharris grandiflora, per dozen blooms	3	0-4	— Liberty ...	2	0-5
Freerias, p. dz. bch.	1	0-1	— Mme. Chateau ...	2	0-5
Gardenias, per dz.	1	6-2	— Richmond ...	2	0-4
Heather (white), per bunch	1	0	— The Bride ...	2	0-3
Iris (Spanish), per doz. bunches	9	0-12	Spirea, per doz. bunches	4	0-6
Lapageria alba, per dozen blooms	1	6-2	Stephanotis, 72 "pips" ...	2	0-3
Lilac (Franch.), p. bch.	2	0-3	Stocks, per doz. bunches	3	0-4
Lilium auratum, per bunch	2	0-3	Sweet Peas, per dozen bunches...	2	0-4
— longiflorum ...	2	0-3	Tuberose, p. gross, per doz. blooms	4	0-6
— laurifolium ...	2	0-2	Tulips, singles, per doz. bunches...	6	0-9
— laurifolium album ...	1	6-2	— doubles, per doz. bunches...	10	0-15
Lily of the Valley, p. dz. bunches	6	0-9	Viola, per doz. bunches	1	6-2
— extra quality...	12	0-15	— Parma ...	1	6-2

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum cuneatum, per dozen bunches	6	0-8	Ferns (French) ...	0	6-9
Asparagus plumosus, long trails, per doz. bunches	12	0-18	Galax leaves, per doz. bunches	1	6-2
— medium, doz. bunches	12	0-18	Hardy foliage (various), per dozen bunches	3	0-9
— Sprengeri ...	0	9-1	Ivy-leaves, bronze, long trails per bundle...	0	9-1
Berberis, per dozen bunches	2	6-3	— short green, per dz. bunches	1	6-2
Croton leaves, per dozen bunches	9	0-12	Moss, per gross ...	4	0-5
Cycas leaves, each	1	0-2	Myrtle, dz. bchs. (English), small-leaved...	4	0-6
Ferns, per dozen bunches (English)	2	0-3	— French ...	1	0-1
			— small, p. dz. trails	3	0-4

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacia Drummondii, per dozen	24	0-30	Daffodils, per doz.	4	0-6
Ampelopsis Veitchii, per dozen	6	0-8	Dracenas, per doz.	9	0-24
Araha Sieboldii, p. dozen ...	5	0-8	Erica candidissima	18	0-24
— larger specimens ...	9	0-12	— gracilis, doz...	10	0-15
— Mossii ...	6	0-8	— hyemalis ...	9	0-15
— larger plants ...	12	0-18	— melantha ...	9	0-18
Araucaria excelsa, per dozen	12	0-30	— resoluta alba	24	0-30
— large plants, each	3	6-5	— small plants (various), per dz.	3	0-5
Aspidistras, p. dz., green ...	15	0-24	Eranthis, per dz.	10	0-20
— variegated ...	30	0-42	— repens, per dz.	6	0-8
Asparagus plumosus nanus, per dozen	9	0-15	Genistas, per dz.	5	0-8
— Sprengeri ...	9	0-12	Grevilleas, per dz.	4	0-6
— tenuissimus ...	9	0-12	Hycinchins, per dz.	6	0-9
Azaleas, per doz.	30	0-42	— pots, 8 in a pot	6	0-9
Begonia Gloire de Lorraine, p. dozen	12	0-18	Isoetes, per dozen	4	0-6
Boronia heterophylla, per dz.	24	0-30	Kentia, per dozen	18	0-24
— megastigma ...	18	0-24	— Foetida, per dozen	18	0-30
Cinerarias, per doz.	5	0-8	— in flower	18	0-24
Clematis, per doz.	8	0-9	Cocos Weddelliana, per dozen	15	0-21
— in flower	18	0-24	Crocus, per dozen	18	0-30
Crocus Weddelliana, per dozen	18	0-30	Cyclamen, per doz.	8	0-12
Crotons, per dozen	18	0-30	Cyperus alternifolius, dozen	4	0-5
Cyclamen, per doz.	8	0-12	— laxus, per doz.	4	0-5
Cyperus alternifolius, dozen	4	0-5			
— laxus, per doz.	4	0-5			

Plants in Pots, &c.: Average Wholesale Prices (Contd.).

	s.d. s.d.	Stocks (Intermed- iate), per dz. ...	s.d. s.d.
Marguerites, white, per dozen ...	6 0-9 0	Tulips in boxes of 24 bulbs ...	1 6-2 0
Mignonette, p. doz.	6 0-8 0	— pots, special ...	9 0-12 0
Selaginella, p. doz.	4 0-6 0		
Spirea japonica, dz.	8 0 10 0		

Fruit: Average Wholesale Prices.

	s.d. s.d.	Grapes (Cape), per box: ...	s.d. s.d.
Apples (U.S.), per barrel ...	24 0-27 0	— Raisin Blanc, 10 lbs. to 12 lbs. ...	4 0-5 0
— Albemarle Pip- pin ...	32 6 —	— 10 lbs. to 24 lbs. ...	8 0 —
— (Canadian), per barrel ...	26 6 —	— Hermitage, 10 lbs. to 12 lbs. ...	6 0 —
— Spy ...	26 6 —	Lemons, per case: — (Messina) se- lected, 300 ...	10 6 —
— (Nova Scotian), per barrel ...	16 0 17 0	— selected, large ...	9 6 —
— Baldwin ...	14 0-17 0	— medium, 360 ...	7 6 —
— Ben Davies ...	18 0 —	— special cases, 330 ...	8 6 —
— (Californian), per case ...	11 6 —	— boxes, extra quality, 300 ...	5 9 —
— Newtown Pippin, 4 tiers, selected ...	11 6 —	— Lychees, per box ...	1 6 1 9
— 4 tiers, do. ...	9 6 —	Mangoes (Cape), per doz. ...	4 0-10 0
— 4 tiers, seconds ...	8 3 —	Nuts, Almonds, p. bag ...	36 0-42 0
— 4 tiers, do. ...	8 0 —	— Brazil, new, per cwt. ...	50 0 —
— (Oregon), New- town Pippin, per case ...	15 0 —	— Brazil, new, per cwt. ...	32 0 34 0
— 4 tiers ...	13 6 —	— Cob, per lb. ...	0 30 34 0
— 5 tiers ...	10 6 —	— Cocoa nuts, 100 ...	10 0-14 0
— French Russet ...	8 0-10 0	— (Italian), p. bag ...	11 0-13 0
— British Colum- bia ...	12 0 18 0	— Chestnuts, Huelva, sack ...	7 6 —
— (Australian), per case ...	13 0 14 0	Oranges: — Palermo Blood (80) ...	6 6 7 6
— Cleopatra, se- lected large ...	11 0-12 0	— (100) ...	6 6 7 6
— Do., medium ...	11 0-11 0	— Californian ...	11 0-13 0
— Jonathan ...	11 0-11 0	— Navel, box (80) — case (160) — " (112) — " (126) — Jaffa, case (144) ...	9 0-10 0
— Monroe's Fa- vourite ...	9 0-10 0	— Do., per case (420) ...	12 6 —
— (Tasmanian), per case ...	11 0 12 0	— Selected ...	13 6-14 6
— Ribston ...	12 0 13 0	— (420) large ...	20 0-25 0
— New York ...	9 0-10 0	— (714) specials ...	14 6 —
— Allington, look- ing ...	9 0-10 0	— (714) selected ...	16 6 18 6
— Mobb's Codling ...	9 0-10 0	— Valencia, per case (120) ...	11 0 20 0
— Alexander ...	9 0 —	— Messina Bit- ters, box (200) — Mandarin, Florida, case ...	10 0 —

Cranberries (American Cape Cod), per case	7 0 —	— per box	1 4 1 0
		— Jamaica, p. case	9 6 10 6
Custard Apples, p. dozen	6 0-12 0	— Tangerine, per box	0 6 0 9
Dates (Star), cwt.	10 0 —	— Seville Sours, per ½ chest	15 0-16 0
Grape Fruit, case:			
— 96's ...		Pears (Avacado), per doz.	6 0-12 0
— 80's ...			
— 64's ...	14 0-18 0	Pears, Beurree Hardy (28, 32)	6 0-6 6
— 54's ...		— Beurree Bosc (24, 28)	6 0-6 6
Grapes, per lb.:		Pineapples, each	2 6 4 0
— Gros Colmar,		Plums, (Cape), Kelsey	10 0-12 0
— A quality ...	2 0-3 6	Strawberries, p. lb.	4 0 5 0
— B quality ...	1 3-2 6	— seconds	1 0-2 2
— (Almeria), per barrel	20 0-25 0		
p. 12 lb. baskets	3 0 —		

Vegetables: Average Wholesale Prices.

	s. d. s. d.		s. d. s. d.
Artichokes (Globe), per dozen ...	2 0-2 6	Horseradish, for- eign, new, per bundle ...	1 0-1 6
— Jerusalem, ½ sieve ...	0 9-1 0	— 12 bundles ...	12 0-18 0
Asparagus, Paris Green, bundle ...	4 6 —	— Lettuce (French), (Cos), per doz. ...	4 0-5 0
— Spruce ...	0 9-10 10	— Mint, doz. bunches ...	3 0 4 0
— (Dijon) ...	2 10 3 0	— Mushrooms, per lb. ...	1 0-1 6
— Lauris ...	4 0-6 0	— broilers ...	0 10 1 0
— (Spanish) ...	2 3 2 6	Mustard and Cress, per dozen pun. Onions (English), bag ...	4 0-4 6
— (Barcelona) ...	1 0-1 2	— picking, p. b. sh. — Spring, per dz. bunches ...	2 6 —
— Giant ...	10 6-25 0	— (Valencia), per case ...	8 6 —
Beans (English and Chan. Islands), per lb. ...	0 9-1 2	— Egyptian, bags Parsley, ½ sieve ...	1 6-2 0
— Broad (French), per pad ...	3 6-4 6	— Peas (French), pad — (Jersey) per lb. Potatoes (Algerian), cwt. ...	6 0-8 0 2 3-2 9 14 0-16 0
— (Madeira), per basket (6 to 8 lbs.) ...	2 6-3 6	— (Channel Is- lands), per lb. — (Teneriffe), per cwt. ...	10-1 3 0 4-0 6 12 0-14 0
Beetroot, per bushel	1 6-2 0	Rhubarb (forced), doz. bundles ...	10-1 3
Cabbages, p. tally	3 0-4 0	— Natural, per tally ...	5 6-6 6
Cardoons (French), per dozen ...	8 0-10 0	Radishes (Guern- sey), per dozen Savoy, per tally ...	0 8-0 9 4 6-6 0
Carrots (English), dozen bunches ...	2 9-3 0	— Seakale ...	1 0-1 4
— per bag ...	3 6-4 0	Spinach, ½ sieve ...	2 0-2 6
— unwashed ...	1 6 1 9	— (French), crate ...	2 0-2 6
Cauliflowers, tally ...	6 0-8 0		
— (French), per crate (24-30) ...	4 0-5 0		
Celeriac, per doz.	2 6-3 0		
Chicory, per lb.	0 23-0 3		
Cucumbers, p. flat — 30's ...	6 6-8 0		
— 3's ...	6 6 7 6		
Endive, per dozen	2 0-2 3		
Greens, Spung, bag ...	1 0-2 0		

Vegetables: Average Wholesale Prices (continued).

	s.d.	s.d.			s.d.	s.d.
Sprouting Broccoli,			Turnips, 12 bun-			
bag ...	1 0-1 6		ches ...	...	2 0-5 0	
Stachys tuberosa,			— bags ...	...	2 6-3 0	
per lb. ...	0 4-0 5		— dirty, per bag ...	...	2 0 —	
Tomatoes—			Turnip tops, bag	...	2 0-2 6	
— (Teneriffe), per			Watercress, per			
bundle ...	12 0 14 0		flat ...	...	4 0-6 6	

REMARKS.—Cape Pears are dearer. Forced Strawberries are a moderate supply but sufficient to meet the demand. Canary Tomatoes of sound quality are scarce and are making high prices. Good Canary Bananas are scarcer. The English Grape trade is quiet, but the demand for Cape Grapes appears to be good. Cucumbers are plentiful, but maintain fair prices. Asparagus generally is dearer; some very fine giant Asparagus from Paris is finding a good market. Trade generally is very quiet, both in the vegetable and fruit markets. *E. H. Rides, Covent Garden, April 13, 1910.*

Potatoes.

	per cwt.		per cwt.
Bedfords— Up-to-Date ...	3 0 3 6	Lincolns— Up-to-Date ...	3 3 4 0
Blacklands ...	2 0-2 9	Dameny Beauty ...	3 6-3 9
Dunbars— Maincrop ...	5 3-5 6	Royal Kidney ...	2 6-2 9
Up-to-Date ...	4 3-4 6	Maincrop ...	3 0-3 9
Lincolns— Evergood ...	2 3-2 9	King Edwards ...	3 3-3 9
Sharpe's Express ...	3 0-3 3	Blacklands ...	2 9-3 0
		Kents— Scottish Triumphs ...	3 6-4 0
		Up-to-Date ...	3 6-4 0

REMARKS.—Trade still remains steady and prices are very little different. Best tubers of Up-to-Date variety have an increased demand, but the trade for Maincrop is not good. *Edwards J. Newbourn, Covent Garden and St. Pancras, April 13, 1910.*

COVENT GARDEN FLOWER MARKET.

During the past week there has been a little revival in trade. French flowers have not been so abundant, and this has been an advantage to English growers, who have been able to clear their stocks, although not at increased prices. Daffodils have advanced slightly in prices, but very few have sold for more than 2s. per dozen bunches. Many of the choicest sorts are sold to the florists without coming in the market.

The bright weather is causing Roses and Carnations to develop rapidly. Tulips continue to be abundant; we now see some of the best Dutch varieties, and there are also some fine double Dutch kinds. Hyacinths are good, but they make very low prices. Lily of the Valley does not vary in value, but blooms of Lilium longiflorum and Callas (Richardias) are cheaper. Gardenias are more plentiful. Camellias do not sell very readily. I have recently purchased Camellias from a local grower, who cuts them with a good length of stem, in which condition they are more appreciated than those without leaves. I kept one bloom of Camellia, with the foliage, for nearly a fortnight. Cutting back the flowering shoots is an advantage to the plants, for they make better growth and flower equally as well, the next season.

POT PLANTS.

Pelargoniums of various sorts may be had in well-flowered plants; spring Heaths are also good. Although late in the year, the Indian Azaleas are still good. Geraniums are at their best and in flower, and very plentiful. Marguerites are good. Intermediate, or East Lothian Stocks are remarkably fine this season. Cinerarias of the dwarf, bushy type, with large heads of bloom, are very showy subjects. Hydrangeas are now good, and especially the variety Thos. Hogg, but plants of H. hortensia are not well coloured. Notwithstanding this, they have been making good prices. Summer bedding plants are a great feature, and may be bought cheaper now than later in the season. The Pansy trade is very brisk; some very fine varieties of this plant are seen. Violas are also good from several growers. Large quantities of hardy herbaceous plants are seen, also seedlings of various annuals and biennials. *A. H., Covent Garden, Wednesday, April 13, 1910.*

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 9, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather varied a good deal; in most parts of Britain the sky was generally cloudy, and some days were more or less rainy, but in Ireland, although rain was as frequent, the sky was less cloudy. Thunder and lightning occurred at Dublin and Cahir on Sunday, at Hereford, Tunbridge Wells, and on the coast of Sussex on Wednesday, and thunder was heard at Douglas on Wednesday and Friday. Aurora was seen at Wick on Sunday night.

The temperature was below the average, the deficit ranging upwards to about 8° in the Midland Counties, England S.E., S.W., and the English Channel. The highest of the maxima were mostly on the 8th or 9th, and ranged from 61° in Scotland E. and Ireland S. and 58° in Scotland N. to 53° in England N.E. The lowest of the minima were recorded on the 3rd at most stations in Ireland and Scotland. The readings ranged from 21° in England E. (at Cambridge), 23° in England S.E. (at Swarwell), and 23° in the Midland Counties and England S.W. (at Cirencester and Llangamarch Wells) to 29° in Scotland W. and England N.W., and to 32° in the English Channel. The lowest readings on the grass were 10° at Cambridge, 14° at Llangamarch Wells, 16° at Hereford and Greenwich, and 18° at Birmingham, Tunbridge Wells, and Wisley.

The mean temperature of the sea.—As a whole the temperature differed little from that of the corresponding week

of last year, but at Cleggan and Seafeld it was about 2½° lower. The means for the week ranged from 49° at Newquay, and 47½° at Plymouth and Seabold to 44° at Lerwick, 43° at the Shipwash Light Vessel, and to 41° at Burnmouth.

The rainfall exceeded the normal over the eastern half of England, but was less elsewhere, the deficit being large in Ireland and the north and west of Scotland. As much as 1·2 inch was recorded at Bath on Wednesday, and 1·1 inch at Westbourne (Emsworth).

The bright sunshine was above the average in Ireland, the English Channel and Scotland N., below it in all other parts of the Kingdom. The percentage of the possible duration ranged from 50 in the English Channel and 49 in Ireland N. to 23 in England N.W., 18 in England N.E. and to 14 in the Midland Counties.

THE WEATHER IN WEST HERTS.

Week ending April 13th.

A change to warmer weather.—During the early part of the week the temperature continued low both during the day time and at night, but since then warmer weather has set in. On the two warmest days the temperature in the thermometer screen rose to 58°, which is about 4° warmer than is seasonable, and on the warmest night the exposed thermometer did not fall lower than 47°. The ground temperatures have risen, and are now at about an average temperature both at 1 and 2 feet deep. Rain fell on three days, to the total depth of less than a quarter of an inch. These rains were not sufficient to effect the soil gauges, through which there has been no measurable percolation during the week. The sun shone on an average for three and a quarter hours a day, which is one and a half hours a day short of the average for this period in April. Light airs have alone prevailed. Previous to the 10th the direction was mostly some point between north and east, but since then these light airs have all come from some southerly quarter. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by two per cent. *E. M., Berkhamsted, April 13, 1910.*

GARDENING APPOINTMENTS.

(Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, it will be placed in our collecting box for the Gardeners' Orphan Fund, at which it will be thankfully received, and an acknowledgment made in these columns.)

Mr. E. F. HART, previously Gardener to H. P. BURRELL, Esq., The Brooklands, Alton, as Gardener to H. TRIMMER, Esq., Hockley House, Twyford, Hants.

Mr. ARTHUR HOUGHTON, for 6 years Gardener to R. H. SAVORY, Esq., Sandgates, Chertsey, and previously Foreman at Buckhurst Park, Ascot, as Gardener to the Right Hon. the Dowager Countess of HARRINGTON, Herts Ashurst, near Dorking.

Mr. JOSEPH B. ROSS, for 64 years Gardener at Stanhill Court, Charlwood, Horley, Surrey, as Gardener to GEORGE D. FABER, Esq., M.P., Rush Court, Wallingford, Berks. (Thanks for 2s. sent for R.G.O.F. Box.—Eds.)

Mr. F. W. EXLER, for nearly 4 years Gardener to Sir RUFUS D. ISAACS, Foxhill, Reading, as Gardener to C. H. PALMER, Esq., at Borzdown House, Whitchurch, Oxon.

Mr. A. H. RIDOUT, Gardener to A. A. BERENS, Esq., Castlemead, Windsor, as Gardener to OLIVIA, Countess CAIRNS, Paultons, Romsey.

Mr. W. E. WRIGHT, for the past 2½ years Gardener to Captain WALTERS, of Caer Lan, near Monmouth, as Gardener to Mrs. A. BOSANQUET, Cleddon Hall, Trelicch, near Monmouth.

Mr. W. H. JONES, for 8 years in the service of Col. J. S. RUSTON, Esq., Monks Manor, Lincoln, as Gardener to J. T. HEREFORD, Esq., Sutton Court, Hereford.

Mr. A. STRICKLAND, as Gardener to the Right Hon. Lord GRANTLEY, Oakley Hall, Cirencester, Gloucestershire. (Thanks for contribution to R.G.O.F. Box.—Eds.)

Mr. W. APTE, for the past 8½ years with Mrs. WHALLEY, late of Pentrefrynnon Hall, Holywell, N. Wales, and now of Hellens, Much Marcle, Herefordshire, as Gardener to A. H. TATE, Esq., Burton Tower, Gresford, Denbighshire. (Thanks for 2s. 6d. sent for R.G.O.F. Box.—Eds.)

Mr. F. LANSBERRY, for the past 5 years Fruit Foreman at Knowsley Gardens, Prescot, Lancashire, as Gardener to Sir Edward Hulse, Bart., Breamore House, Breamore, near Salisbury.

Mr. F. J. CLARK, for nearly 12 years Gardener to MARK FIRTH, Esq., Wistow Hall, Leicester, as Gardener to A. F. BASSET, Esq., Tehidy Park, Camborne, Cornwall.

Mr. WM. B. CLARK, for the past 2 years Foreman at Coltness Gardens, Wishaw, and previously for 2 years at Terregles Gardens, Dumfries, as Gardener to Mrs. J. W. CROMBIE, Balfour Lodge, Aberdeen.

Mr. JAMES A. THOMPSON, Gardener to BARROW CADBURY, Esq., J.P., Southfield, Wheeley's Road, Edgbaston, Birmingham, as Gardener to the same gentleman at his country residence, Cropwood, Blackwell, near Bromsgrove, Worcestershire.

Mr. E. JOHNSON, as Gardener to A. HEPBURN, Esq., Stanhill Court, Charlwood, Surrey.

Mr. H. HOWES, for the last 3 years Foreman at Barton Hall Gardens, Bury St. Edmunds, as Gardener to W. CUNLIFFE, Esq., Headley Court, Epsom.

Mr. H. GARNETT, for many years at Mount Harry Gardens, and for the past 2 years at Withdene Lodge, as Gardener to H. YOUNG, Esq., Withdene Grange, Brighton. (Thanks for your donation of 2s. for the R.G.O.F. Box.—Eds.)

DEBATING SOCIETIES.

READING GARDENERS'.—There was a large attendance of the members at the fortnightly meeting held in the Abbey Hall, Reading, on Monday, March 21, under the presidency of Mr. Alderman Parrott, J.P. As at the previous meeting, the hall was rendered attractive by floral exhibits. Cinerarias were staged by Mr. R. Doe, The Gardens, Holme Park, and a group of Cineraria stellata was displayed by Mr. F. Townsend, The Gardens, Hillside. Mr. W. Barnes, The Gardens, Bearwood, exhibited early Cabbages grown in the open from seed sown in July. Mr. H. Goodger, gardener to Mrs. Collins, Stoneham House, Calcot, was awarded the Association's certificate for an exhibit of Violets. The lecturer for the evening was Mr. T. Judd (chairman of the committee), his subject being "Plants for Spring Bedding." Briefly touching on Bulbs at the commencement of his remarks, Mr. Judd explained how, by the exercise of a little thought and the judicious sowing of suitable seeds, it was a simple matter to make the garden beautiful in early spring. Subjects specially adapted for an early display of bloom include Alyssum, Arabis, Aubrietia, Daisy, Erysimum, Linum, Myosotis, Pansy, Nemophila, Polyanthus, Primrose, Silene, Stock, Viola and Wallflower, while Canterbury Bells and Sweetwilliams may be used to extend the flowering period. Mr. Judd gave full information with regard to the preparation of the seed beds, time of sowing and the general treatment of these plants.

A meeting was held in the Abbey Hall on Monday, April 4. Mr. T. Judd presided. The subject for the evening was "Rhododendrons," introduced by Mr. A. F. Bailey, The Gardens, Leopold House, Reading. Mr. Bailey dealt with these beautiful flowering shrubs in their various stages, from seedlings to fully-matured plants, giving much instructive information on the treatment of both hardy and tender varieties, also on planting for effect, colour combinations, massing, &c. His practical demonstrations on the grafting and layering of Rhododendrons were closely followed by the audience. At the next meeting to be held on April 18, Mr. T. J. Powell, of Park Place Gardens, will give a demonstration on "The Arrangement of Cut Flowers in Vases, &c." On this occasion ladies will be admitted, and members are invited to bring bunches of flowers which will be afterwards sent to the Royal Berkshire Hospital.

REDHILL AND REIGATE GARDENERS'.—The usual fortnightly meeting of this association was held in the Penrhyn Hall on Tuesday, March 29. Mr. Bound presided. Mr. T. Tunbridge a representative of the Reading Gardeners' Association, gave a lecture on "Annuals." Mr. Tunbridge first dealt with varieties that were especially useful for supplying cut flowers, and then considered those most suitable for the border. The last week in March or the first in April is soon enough for the sowing of the seed. A list of the best annuals includes Lavatera, Zinnia, Clarkia, Gailardia, Centaurea, Salpiglossis, Scabiosa, Godetia, Ipomoea, Helichrysum, Schizanthus, Nicotiana, Agrostis nebulosa, Eschscholtzia, Viscaria, Lychnis, Mesembryanthemum, Sweet Peas, Stocks, Asters, Lobelia, Phlox and Coreopsis.

BRISTOL AND DISTRICT GARDENERS'.—The annual official visit of the Bristol Amateurs' Society took place on March 24. The meeting was held in St. John's Park, Rooms. Col. Carey Batten presided over a largely-attended meeting. Mr. White gave a paper entitled "An Amateur's Orchid Notes." Mr. White spoke of the good feeling which existed between the two societies, and hoped it would continue. He said there was no decorative flowering plant to be compared to the Orchid, especially when considering the lasting qualities of the flowers. Cattleyas, Odontoglossums, Oncidiums, Dendrobiums and Cælogynes were recommended for a beginner's collection, Cypripediums being much the best for town gardens.

GUILDFORD AND DISTRICT GARDENERS'.—The usual fortnightly meeting was held in the Workman's Hall on Tuesday, March 29, Mr. H. Tann presiding. Mr. G. Johnson, of Braboeuf Manor, Guildford, read a paper on "Insect Pests," dealing principally with Onion Fly, Wire Worm, Carrot Fly, Celery Fly, and Black Currant Mite. Mr. Johnson related his experiences with these destructive insects, and gave preventive methods.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.—At the meeting held on Tuesday, the 5th inst., Mr. E. Beckett, V.M.H., of Aldenham House Gardens, gave a paper, illustrated with lantern slides, on "Choice Flowering and other Shrubs." Such cultural points as the preparation of the ground, planting and pruning, were ably dealt with. He also gave a selection of desirable kinds, worthy of wider recognition, in preference to many of less merit so frequently employed.

WARGRAVE GARDENERS'.—At the meeting held on April 6, a paper on "Winter-flowering Carnations" was given by Mr. A. Brotherton, foreman at Siplake Court Gardens. The lecturer dealt with the cultivation of the Carnation and the fungoid and insect pests of this plant, and the best methods of combating them. A list of the most popular varieties was also given.

CATALOGUES RECEIVED.

MANSELL & HATCHER, LTD., Rawdon, Leeds.—Liliums and Orchids, with coloured plates of Lilium nepalense and L. sulphureum.
CLIBRANS, Altrincham and Manchester.—Indoor Plants, including new hybrid Begonias.
JAMES VEITCH & SONS, LTD., Kings Road, Chelsea.—Dahlias, Cannas, and other bedding plants.
STUART LOW & CO., Bush Hill Park, Enfield.—Carnations.
J. A. COOPER, Lissadell, Sligo, Ireland.—Alpine and Hardy Herbaceous Plants, Shrubs.
THYNNE & WITHERS, Granville Nurseries, Willsbridge, near Bristol.—Perpetual-flowering Carnations.
LACY, HULBERT & CO., LTD., Victoria Street, Westminster, London.—Rotary Pumps.
CHARLES WORTH & CO., Haywards Heath, Sussex.—Orchids.
BOULTON & PAUL, LTD., Norwich.—Separate Lists of Garden Furniture, Fencing, Park Seats, Country House Requisites, Seats of Old English Design, Trellis, Arches, Pergolas, &c., "Banbury" Turf Cutter, and Multi-dibbers for Seed Sowing.
JAMES STREDWICK & SON, Silverhill Park, St. Leonards-on-Sea.—Dahlias.

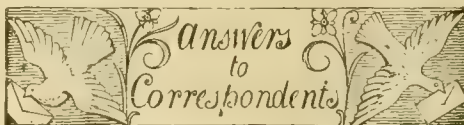
TRADE NOTICES.

R. COBLEY & CO., LTD.

The above-named company has been registered with a capital of £15,000 in £1 shares. The objects are to acquire the business of Richard Cobley, nurseryman, Cheshunt, Herts. The company is a private concern with registered office at 27, Southampton Street, Strand, W.C.

THE LOCKSHEATH NURSERIES, LTD.

This company has been registered with a capital of £8,000 in £1 shares (10 deferred). The objects are to come to an agreement with G. H. Atkinson and Mrs. K. Atkinson for the acquisition of the business carried on by G. H. Atkinson in Hampshire and London. Private company. Registered office, 23, Cranbourn Street, Westminster.



AZALEA LEAVES DISEASED: W. R., Canterbury.

The galls are caused by a fungus, a species of Exobasidium. Remove and burn the leaves in the early stages of the attack.

BETTERIES IN PLANT HOUSE: H. B. W. They are the common house beetle. Some arsenical poison, such as Chase's Beetle Paste, will kill them. See note on Cockroaches in *Gardeners' Chronicle*, January 15, p. 43.

BOOKS: W. W. Amongst the recent writers of our weekly Calendars who have published books are Mr. E. Beckett, *Elstree Gardens (Vegetables for Home and Exhibition)*; Mr. W. H. White, *Burford Gardens, Dorking (The Book of Orchids)*; and Mr. Alex. Kirk, *Alloa Gardens, Prestonkirk (The Book of the Vine)*.

CABBAGES WITH SWOLLEN ROOTS: E. W. The trouble is caused by clubbing, known also as Finger and Toe disease, and in some parts as Anbury. It is caused by a micro-organism, Plasmodiophora brassicae, which gains access to the plant in its seedling stage. Do not grow Brassicas on the same land for a year or two, and dress the soil freely with lime.

COLOUR SCHEME FOR FLOWER-BEDS: Mignonette. A brilliant and varied colour scheme is difficult to arrange in patches, unless white kinds are used freely. Patches of tuberous-rooted Begonias in half-a-dozen shades of colour—crimson, red, white, yellow, pink, and salmon—with a groundwork of variegated Mesembryanthemum or dwarf white Alyssum would be effective for the inner circle. The outer circle may be planted with the small-flowered, double, red Begonia Count Zeppelin or La Fayette, with a groundwork of dwarf white Alyssum and a few dot plants of Fuchsia macrostemma variegata. A scheme in which red predominates is generally more effective. For this you could use the red-flowered Pelargonium Paul Crampel, instead of the Begonias. But for planting in patches the best effect would probably be produced with Violas. Of these, you can obtain a dozen or more distinct shades of blue, yellow, and white. Patches of Pelargoniums would also answer the purpose if you used white freely.

DAFFODIL WITH TWIN FLOWERS. It is not uncommon for two flowers to develop on one spike. We often receive examples during the season. The variety is probably Orphee.

DESTRUCTION OF MEALY BUG ON PEACHES: E. T. One of the best insecticides for this purpose is soft soap and petroleum. To three gallons of warm, soft water add a wineglassful of petroleum and a piece of soap the size of a hen's egg. Place the materials in a bucket (not a painted can), add about half a gallon of boiling water, and churn vigorously with a syringe until the soap is dissolved. Add the rest of the water (2½ gallons), and apply to the tree in the afternoon about 4 p.m. Considerable force should be used when syringing, so that the trees may be thoroughly wetted and the liquid forced into all crevices. Whilst the operator is syringing another person should manipulate the leaves to expose the bug. To prevent the oil floating on the top of the solution, alternate syringefulls should be returned to the bucket. As the young foliage of the Peach is very tender, it is advisable to give a thorough syringing with clear lukewarm water about 7 a.m. the following morning. If, after

this treatment, any stragglers are left, they should be destroyed with methylated spirits, using a pointed stick and touching each insect with a single drop of spirit, taking care not to wet the leaves or fruits in the process. The date of ripening will depend, in a great measure, upon the variety, and this you did not state.

EMIGRATION: Cambis. We cannot advise you on this matter. You will find particulars on the subject in the issue for February 19, p. 122.—Hortus. We are sorry we cannot assist you. Write to the Agent-General for Tasmania, London.

FRENCH GARDENING: B. K. The Cabbage Lettuces might reasonably have been expected to be ready for consumption before the Cos Lettuces. We cannot tell you why they were not, but suspect it is due to the extra warmth in the manure bed under the frame. You have not stated which varieties these were, but it is, of course, a fact that some are earlier than others.

JUDGING VEGETABLES: S. R. You cannot do better than follow the list of "Rules for Judging," published by the Royal Horticultural Society. It will be sent post free on receipt of a postal order for 1s. 6d., addressed to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.

NAMES OF FRUITS:—H. E. M. Apple Dumelow's Seedling.

NAMES OF PLANTS: H. G. S. Narcissus nanus.—W. E. Erica arborea; Phyllirea media.—A. C. W. Azara microphylla.—J. H. Narcissi: 1, Fortuosus; 2, Duchess of Brabant; 3, Stella Superba.—O. R. L. Narcissus Seagull.—W. O. W. 1, Primula denticulata cashmeriana; 2, P. denticulata; 3, Helixine Soleirolii.—W. B. 1, Two shrubs tied together, Ligustrum lucidum var. and Osmanthus fragrans; 2, Corydalis bulbosa; 3, Iris tuberosa.—F. J. S. There are many seedling forms of H. orientalis and H. colchicus in cultivation similar to the one you send.—A. B. C. 1, Cypripedium purpuratum; 2, C. argus × venustum; 3, C. barbatum nigrum; 4, Cattleya Schröderae.—R. T. 1, Oncidium excavatum; 2, Odontoglossum ramosissimum; 3, Masdevallia simula; 4, Pleurothallis macroblepharis; 5, Physisiphon Loddigesii; 6, Gongora quinquevenensis.—Subscriber. Cypripedium barbatum.—J. E. T. Akebia quinata.—A. C. H. Vanda tricolor.

NETTING RASPBERRIES: W. L. Your plan of using fish-netting, placed on a wooden frame, is perhaps preferable to a permanent structure of iron and wire netting. But we know of several cases where such wire cages are used with apparently no ill effects to either bushes or fruit.

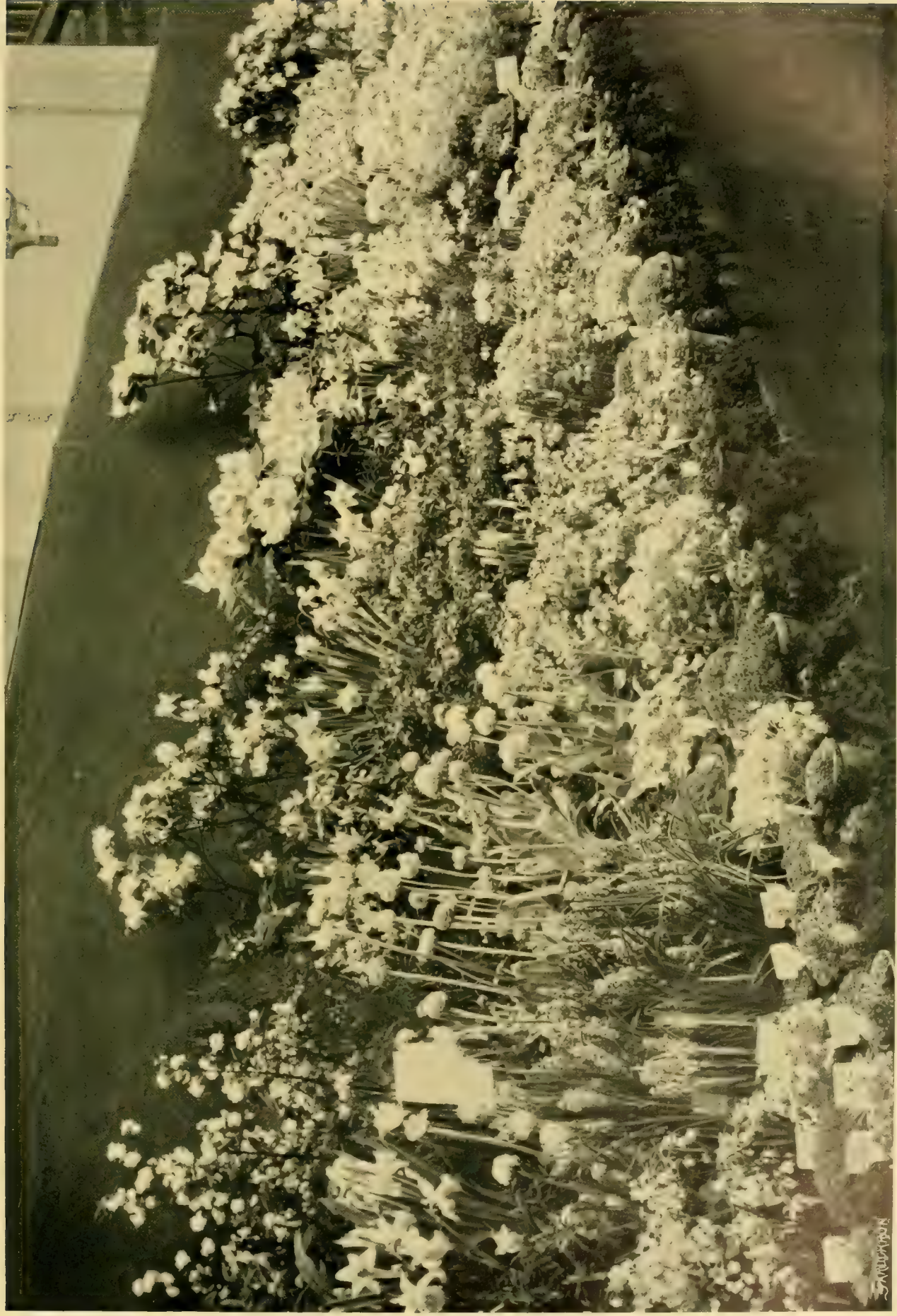
PEACH LEAVES: A. P. and Anxious, Somerset. The foliage exhibits "silver leaf" disease. It is attributed to the attack of a fungus—a species of Stereum—which occurs in the root and base of the stem. The only measure you can adopt is to burn the worst of the leaves, and to afford the plant the best cultural treatment, so that it would be likely to grow out of the disease.

SCUM ON PONDS: E. L. Spray the water with the Bordeaux mixture at half-strength, and repeat the operation at intervals. If the operation is carried out with care the gold fish will not suffer any injury.

VINES AND NECTARINES: L. B. H. The vines have received some check, but only those on the spot can say what has caused it. The Nectarine leaves are affected with silver leaf disease. See reply to A. P.

WHITE-SPROUTING BROCCOLI: J. Creasey. Your Broccoli is the true white-sprouting Broccoli of commerce, which has long been recognised as a very valuable winter vegetable. The judges were quite wrong in disqualifying it. It needed very little examination on their part as well as knowledge to enable them to see that the variety was not of the ordinary solid, white-headed Broccoli. No doubt the heads or sprouts would have shown their much-divided and distinct form a week later.

Communications Received.—H. G.—A. A. P.—G. A.—W. B. C. W.—"Insect"—"Anxious Inquirer"—A. F.—"Fig Leaves"—C. C.—J. M., Claydon—W. H. S.—C. D.—S. A.—W. K.—J. G.—"Cambis"—A. R. G.—H. A. C. Whipton—F. M.—W. P. W.—T. S.—P. T. R.—G. P.—B. S. B.—G. H.—W. B.—E. M.—J. S. S.—R. H. P.



SIR EVERARD HAMBRO'S GROUP OF ALPINE PLANTS, FOR WHICH A GOLD MEDAL WAS AWARDED
AT THE R.H.S. MEETING, ON MARCH 8, 1910.



THE Gardeners' Chronicle

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PLANT-BREEDING METHODS APPLIED TO TREES.*

THERE are two species† of Elms in the British Isles—*Ulmus montana*, With., often found in woods throughout England, Scotland, and Ireland; and *Ulmus glabra*, Miller, rarely if ever found in woods, and limited as a common tree to hedgerows and parks in the east of England, although it is somewhat prevalent in Cornwall and the south of Ireland. I regard the latter species as the Elm which flourished in prehistoric times in the forests of the alluvial lands with better soil which are now employed for agricultural purposes. In France,‡ Germany, Belgium, and Denmark this tree is also rare in woods, becoming a component of the forests further south, as in the alluvial lands of the Danube. The Elm of the Mediterranean region is a distinct race, much more pubescent than true *U. glabra*.

* Abstract of a paper by Dr. A. Henry, read before the Linnean Society, April 7, 1910.

† The correct nomenclature of the Elms is still uncertain; and the names used here are well-known ones, not necessarily those which I shall ultimately adopt.

‡ I am not concerned in this paper with the third European species, *U. pedunculata*, Foug., which belongs to another section, and is almost indistinguishable from *U. americana*, L., of North America.

The main differences between the two species of Elms may be tabulated as follows:—

U. MONTANA.

Branchlets stout, pubescent, remaining smooth in the second year.

Leaves large, thick in texture, very pubescent, especially on the upper surface, with short stalks.

Seed in the centre of the samara.

The tree rarely suckers.

U. GLABRA.

Branchlets slender, nearly glabrous, becoming striated in the second year.

Leaves small, very thin in texture, glabrous on the upper surface, with long stalks.

Seed near the upper edge of the samara.

The tree suckers freely.

Both these species are wide-branching trees, and are known by the same name—Wych Elm—in the east of England.

In addition to these two species, there are many so-called varieties of Elms, some of which are considered to be varieties of *U. glabra*, others being supposed to be distinct species.

The most remarkable of these is the "English Elm," the *U. campestris* of English botanists and foresters. It is confined to hedgerows in the south of England, has a distinct habit, possesses a reddish wood unknown in other Elms, and rarely produces fertile seed. It has pubescent branchlets and leaves, the latter being different in shape from those of *U. glabra*, but with long stalks. This tree is unknown on the Continent. In branchlets and leaves it strongly resembles the southern Elm, that on which the vine is trained in northern Italy. On this account it is supposed to have been introduced at an early period into Britain either by the Romans or by the monks, when they were importing the vine into this country. I am at present investigating its possible relation to the southern or Italian Elm; but am inclined, nevertheless, to the opinion that it is, like the other varieties of Elm in England, one of the descendants of the first cross between the two species, or it may be due to a second hybridisation of some of these descendants with *U. montana*.

The Huntingdon Elm (*Ulmus vegeta*) is commonly looked upon as a hybrid, and I consider it to be the first cross between *U. glabra* and *U. montana*; this may be proved by experiments that we are making at the present time. The branchlets are stouter than in *U. glabra*, and often do not become striated. The leaves resemble those of *U. glabra* in the absence of pubescence on the upper surface and in their long stalks, but are as thick as those of *U. montana*. The samarae are intermediate. This tree suckers freely, produces an abundance of fertile seed, and has a peculiar habit, the branches being very ascending. It is, like most first crosses, extraordinarily vigorous, growing faster than any other Elm. This is well seen in the Victoria Park, Bath; where nearly 40 kinds of Elms were planted about the year 1820. The Huntingdon Elm there is twice as large as any of the other kinds. Loudon states, as an illustration of its extraordinary vigour, that a specimen planted only 10 years previously

§ It produces samarae as freely as the other Elms; but the seed is nearly always imperfect. It is invariably reproduced in the hedgerows by suckers.

in the Chiswick Garden had attained 35 feet in height. The Huntingdon Elm originated as a seedling in a nursery at Huntingdon about 1746-1756. I may here draw attention to the fact that the Huntingdon Elm, like most first crosses in trees, leans much more to one of the parents than to the other. Most of the characters of *U. glabra* are dominant. The comparatively large size of the leaf is due to vigour merely.

A great many other kinds of Elms are known, not only in cultivation, but arising spontaneously in hedgerows; it would be easy around Cambridge to find in the hedgerows five or six distinct varieties. Most of these Elms have distinct habits and vary extremely in foliage. I may here point out, however, that the occurrence of trees with corky branchlets appears to be a sporadic phenomenon in each variety, and may be looked upon as a peculiarity of an individual tree, not a characteristic of a variety. *U. glabra*, when quite pure, is frequently characterised by branchlets with excessive, corky wings; and at Kew, where there are three young trees of the English Elm, all suckers from an older tree, one of these is extremely suberose. Any characterisation of a variety of Elm by suberose branchlets alone is certain to be erroneous.

I need not now give the distinguishing characters of the many varieties of Elms, but will pass on to the experimental sowings which I made in June, 1909. In the spring of 1909 every kind of Elm produced fruit in exceptional abundance; due to the good weather prevalent in the autumn of 1908, and to the fact that in the months of March, April, and May, 1909, the amount of sunshine recorded in the south of England was greater than had ever before been recorded by the meteorologists. I sowed** 90 different lots of seed.

The first fact established is, that there are only two kinds of Elms which give, when sown, uniform seedlings. These are the two pure species, *U. montana* and *U. glabra*. A box of *U. montana* seedlings are all uniform in size and other characters. The same applies to a box of *U. glabra* seedlings. Every other kind of Elm when sown produced mixed seedlings, of different sizes, different arrangement of leaves, &c.

The seedling of *U. glabra* has a stiff, unbranched, erect stem, with all the leaves small in size and in opposite pairs.

The seedling of *U. montana* has an unbranched stem drooping to one side, with large leaves, only the first two pairs of which are opposite, all the other leaves above being alternate. For the sake of convenience, I shall speak of the seedlings of this kind as "alternate-leaved" seedlings††.

The seedlings then of the two species are very easy to discriminate in the first year; and this fact has much facilitated our counts of the various lots of seedlings and the deductions that follow from these counts.

This is the case with *Liquidambar styraciflua*. Raised from the same seed, some trees have very corky twigs; others are perfectly smooth.

** Elm seed should be sown as soon as ripe in June; and the best seedlings are obtained by sowing in open beds in good garden soil. Most of my plants were raised in boxes, and were too crowded, and had not depth enough of soil to develop well.

†† When injured by frost, &c., Elm seedlings occasionally branch in the first year; and in such cases, in *U. glabra*, alternate leaves are always produced on the branches. This is in anticipation of the characters of the second year, when the leaves become alternate and remain so ever afterwards. Such branched seedlings were few in number, and in no case were included in our counts of the various lots of seedlings.

Several sowings were made of the seed of the Huntingdon Elm. The seed was taken from one of the trees in Brooklands Avenue, Cambridge. This road is planted on both sides with a large number of Huntingdon Elms, all of the same age, and quite unmixed with other Elms. There is no possibility here of contamination with the pollen of other kinds. All the flowers then are "selfed." The Huntingdon Elm was the source both of the pollen and of the ovules.††

The best crop of Huntingdon Elm seedlings was raised in garden soil by Mr. W. O. Backhouse, §§ one of my students. These seedlings, 971 in all, were counted as regards one character, and showed:—

732 seedlings with opposite leaves.	
239 " " alternate "	
971	

The Mendelian ratio 3:1 is here closely followed, as the theoretical numbers are 732:244.

A further examination of these seedlings showed that there were four kinds plainly visible in the bed, namely:—

Small, opposite leaved	...	9 (?)
Large, " "	...	3 (?)
Small, alternate leaved	...	3 (?)
Large, " "	...	1 (?)

I have added here the theoretical ratio 9:3:3:1, but of this we are not certain, as it was impossible to count the seedlings, as regards two characters, without injuring them, and we wanted to preserve the whole crop. Mr. Backhouse considered that the 9:3:3:1 ratio probably existed in this lot of 971 seedlings.

(To be continued.)

OCCURRENCE OF "NEW YORK CANKER" IN ENGLAND.

In 1899, Professor W. Paddock, of the New York Agricultural Experimental Station, established the fact that the fungus *Sphærospora malorum*, long known in the United States as the cause of the "Black Rot" of the fruit of the Apple, Pear, and Quince, is capable of attacking also the trunk and branches of the same fruit trees. In the latter places the injury produced is of the nature of a "canker." To this special form of "canker," which was studied first on the Apple, Professor Paddock gave the name of the "New York Apple Canker." Inoculations of boughs with pure cultures of the *Sphærospora* obtained from Apples showing the "Black Rot" resulted in the production of the characteristic "canker." Later, it was found that Pears and Quinces also could be thus attacked. The following account of the disease, as it occurs in North America, is taken from that excellent handbook, reviewed recently in these columns, *Fungous Diseases of Plants*, by Professor B. M. Duggar. "This canker has been found to occur in many of the north-eastern and northern-central States, as well as in Canada, and it is not improbable that it is, more or less, distributed through the country. . . . In the mildest form the canker is believed to cause merely a greater roughening of the bark, an injury which may occur as a single spot, or which may extend along the limb for a distance of several feet. In the most serious cases, it first destroys the bark, well-marked, de-

pressed areas being developed, about which local swellings of the limbs occur, and in these affected areas the wood at the centre may be exposed, or extensive wounds may result. The disease is more common upon the larger limbs of older trees, but trunks and twigs are not exempt, and

young trees may suffer. When complete girdling results, the limb is killed; yet serious consequences may gradually develop without girdling. . . . Infection is probably most frequent in the spring. It is believed, upon good evidence, that the worst wounds occur only when the fungus gains entrance to the edge of the wood through wounds. Trees which sun-scald badly on the parts exposed to the direct rays of the south-west sun are, as a rule, subsequently infested with this canker. . . . Occasionally a *Sphærospora* has been found upon the leaves of the Apple and Pear, and this form appears to be similar to the canker fungus. It is thought that general neglect, crowding, lack of pruning, &c., encourage the canker, although it may appear in vigorous orchards. There would appear to be absolutely no doubt that the rot of Apples, Pears, and Quinces is due to the one fungus. Transfers of this organism are readily made. Paddock made many pure cultures as well as many transfers of the canker strains to fruits and vice versa, also to a variety of other hosts."

In the *Journal of the South-Eastern Agricultural College* (Wye), vol. xvii, p. 316 (1908), I recorded and figured the occurrence of a "leaf spot" disease of Apple foliage, caused by a species of *Sphærospora*, and wrote as follows:—"Whether or not the *Sphærospora* here described is the *S. malorum* which causes a special 'canker' of Apple trees in the States, it is worthy of notice as being a fungus which is able, in this country, in certain seasons, to cause a definite injury, in the form of 'leaf spots,' to certain varieties of Apples." Recently, Mr. W. B. Burgess, B.Sc., a horticultural student at Wye College, has brought me a disease, which appeared to him to be an unusual form of "canker," on branches of a Pear tree growing in a garden in Surrey. The general appearance of the disease is shown in fig. 111A. Microscopical examination revealed the presence of the *Sphærospora*. The fruit-conceptacles or pycnidia of the fungus are at first erumpent, and can be seen very clearly under a pocket magnifying glass, when they present an appearance like that shown in fig. 111B. Each pycnidium is a minute, black, more or less globular body, containing many hundreds of oblong, dark, olive-brown spores, which measure 25 to 30 u. by 10 to 15 u. The spores are borne, inside the pycnidium, on short stalk-like conidiophores, which are often to be found attached to the ripe or nearly-ripe spore (see fig. 111C).

With regard to the general external characteristics of this disease on the Pear, the affected branches are noticeable through the roughness and cracking of the bark over a more or less considerable area; the bark ultimately shows a tendency to fall off in small pieces (see fig. 111A). Here and there on the affected boughs one finds the appearance of an incipient "canker." The injury produced has, at first sight, some resemblance to that caused by the "scab" fungus (*Venturia pirina*) on two- or three-year-old wood of some varieties of Pears. From this disease it can be distinguished by the marked cracking of the bark, and the formation of incipient "cankers," and by the absence of the "pock"-like markings so characteristic of Pear "scab." From true "canker" (*Nectria ditissima*), which is not uncommon on certain varieties of Pears, the present disease can be distinguished by the absence of any deep-seated "canker," and by the fact that the injury produced extends continuously over the affected boughs, and is not localised.

REMEDIES.—Professor B. M. Duggar writes as follows:—"Preventive measures have not been carefully worked out. Advantage may be derived from treating the limbs and trunk thoroughly with any 'cleaning-up' washes, or with Bordeaux Mixture. Pruning and scraping may also be required, and, along with this, the wholesale destruction of affected limbs or fruit."

The object of this note is to draw the attention of gardeners and fruit-growers to the fact that

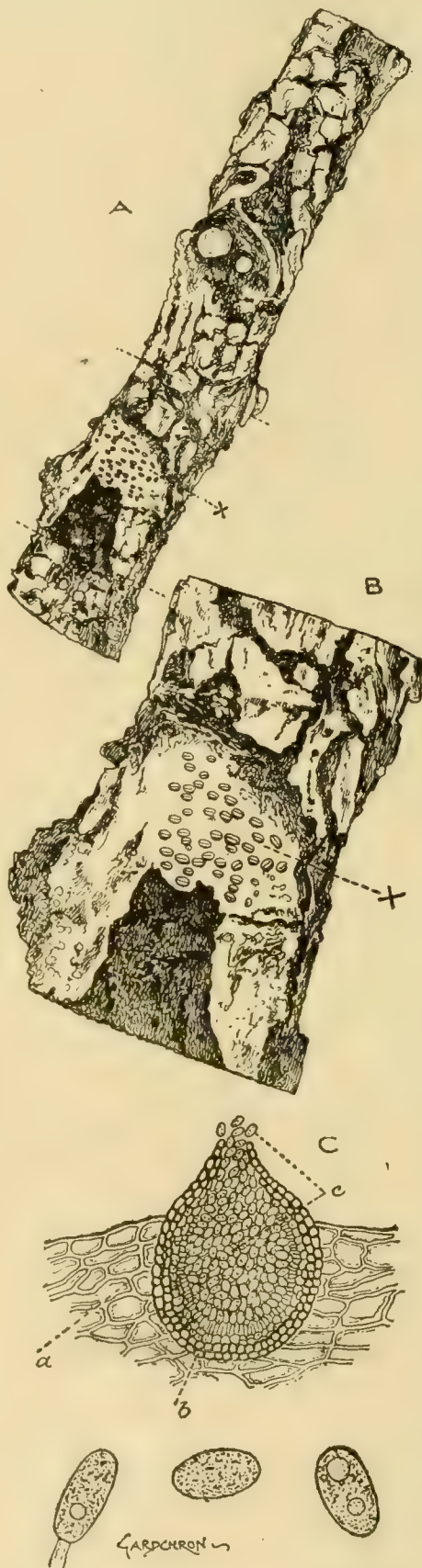


FIG. 111.—*SPHÆROSPORA MALORUM*, "NEW YORK CANKER" DISEASE.

A.—Pear branch attacked by the disease. x = fruit conceptacles (pycnidia) of *Sphærospora malorum*.
B.—Portion of A enlarged. x = pycnidium.
C.—Section through a pycnidium. a, tissue of pear branch; b, wall of pycnidium; c, spores. Below, a single spore borne on a short stalk (conidiophore).

†† Knuth, *Flower Pollination* (Eng. trans.) iii. 379 (1909) says: "The flowers in *Ulmus* are anemophilous and protogynous. The stigmas are mature when the flower opens and project beyond the anthers, which are still immature with short filaments. The latter elongate later on, so that the stigmas are hidden among the stamens; the anthers then dehiscence; and the stigmas, which are still receptive, may be fertilized by automatic self-pollination, if they have not been already dusted with foreign pollen. The flowers are in crowded clusters and do not mature simultaneously." It is, I think, probable that in most cases each Elm flower is fertilized by pollen from another flower of the same tree.

§§ I may here express my indebtedness to Mr. Backhouse for help and suggestions, in connexion with the experiments on the Elms, and the explanation thereof.

there is more than one kind of "canker" on our fruit trees. Besides the *Sphaeropsis* canker described above, there are one or two similar diseases in the United States which cause injury to the wood of fruit trees; these latter may very possibly occur also in this country. I shall be pleased to examine any specimens of branches of Apple or Pear, the bark of which shows a roughened or "canker"-like appearance. *E. S. Salmon, F.L.S., South-Eastern Agricultural College, Wye, Kent.*

THE ROSARY.

CONFUSION IN NAMES.

WHEN one considers the numerous duplication of names for fruits and vegetables, it is scarcely surprising that many Roses are confused in a similar manner. One point worth remembering in connection with synonyms of Roses is, that, where they are applied, the varieties are generally of extra good quality. There would appear to be some temptations to share in the honour of sending out a sterling Rose, but this can surely be no justification for the very flagrant cases which it is my purpose to note in this article. Such a case as that which arose when the white sport from *Souvenir d'un Ami* came out cannot well be avoided, seeing that the sport occurred in two places, and probably simultaneously. That *Souvenir de S. A. Prince* and *The Queen* are synonymous few will dispute, and there is good reason to believe both were sent out in good faith and without the respective raisers knowing anything of the other variety. When Mrs. Harkness was staged for the Gold Medal at Chester, I had already seen Paul's Early Blush, and Mr. Gater agreed with me they were alike, and we knew they had both sported from Heinrich Schultheis.

But such a Rose as Charles Lefebvre should have been well known to Brassac and Jamain, who, 14 and 17 years later respectively, put it into commerce, in each case under the name of a member of their own family. To say the least, this shows inexcusable lack of care. Maurice Bernardin was introduced under that name by Granger in 1861. Surprising as it may seem, he sent it out again four years later, this time calling it *Exposition de Brie*. One would expect the original introducer to have known what he had already distributed. The same variety reappears—once more after a lapse of four years—as Ferdinand de Lesseps, and this time from such a well-known raiser as E. Verdier. Then, six years later, Cranston sent it out as Sir Garnet Wolseley. Now, it would not be easy to select four more competent Rose growers at these dates, and it was to be expected that they would have been acquainted with Maurice Bernardin. As a matter of fact, this variety had been largely grown 14 years before it received its last synonym; while 17 years elapsed between the appearance of Charles Lefebvre and its last duplicate.

As if to confirm the impression that it is only good varieties which receive this embarrassing rechristening, I will give two more examples. Alfred Colomb was distributed by Lacharme in 1865, as Wilhelm Koelle, by E. Verdier 10 years later, as Marshall P. Wilder by Ellwanger and Barry, and as Benoit Comte by Schwartz, both in 1884. Prince Camille de Rohan came from E. Verdier in 1861, from Damaizin in 1874 under the name of La Rosière, and later (1897) as Jubilee from Henderson. One can scarcely credit such overlooking of sterling varieties already in commerce. One more instance occurs to me. In 1848 Guillot père sent out Madame Bravy, in 1862 it appeared again under the name of alba rosea, and later on, at considerable intervals, as Jose-

phine Malton and Madame de Sertot, each time from well-known raisers, who should have been more careful.

A Rose has appeared recently under the name of Lily Ito, but it turns out to be *Félicité Perpétue*, an old favourite since 1828. My stock of this new Rose came direct from the raiser, and is in every particular identical with the older variety. These are some of the most conspicuous examples of synonymy, though they do not exhaust the list. Such duplication under varying names is bad enough, but what is perhaps worse is that some totally distinct Roses carry the same names; in some few instances three different Roses have the same appellation. *A. Piper.*

THE FLORA OF MONT CENIS.

(Concluded from page 242.)

IN a shallow ravine extending from the main road, almost at the back of the Hotel de la Poste, are a number of unusual plants, including the handsome *Aronicum scorpioides* and *A. Clusii*, as well as *Arnica montana*, *Anemone baldensis*, which is frequent, though always rather scattered at Mt. Cenis, and *Silene acaulis* var. *elongata* D.C. = *S. elongata* Bellardi (1788), which has stems 2 inches long, rather larger flowers, and an altogether looser habit than the type. Here also grow *Pedicularis tuberosa*, *incarnata* and *verticillata*, *Arenaria biflora*, *Scabiosa lucida*, *Linum alpinum*, *Astragalus Onobrychis*, *Paradisica Liliastrium*, and several interesting *Galiums*, including a new red-flowered variety of *G. asperum*, to which Dr. John Briquet has given the name of the finder. He published a description of *Galium Thompsonii* Briq. in the *Annuaire du Jardin et du Conservatoire Botanique de Genève* (1907-1908), p. 192. Not realising it was a new plant, I took only one specimen of this small *Galium*, the greater part of which is now in Herb. Brit. Mus., and a smaller bit in the Conservatoire Botanique at Geneva.

Near the Petit Lac I found by accident the rare *Cardamine Plumieri*, which, as Prof. Mattiolo remarks, Boissier and Reuter rediscovered in the district, though it had not been found by others since the time of Allioni in the eighteenth century.

Twice I had the pleasure of the company of three Turin botanists, whose acquaintance I had made in their own city just before. To meet Italians of culture and education is always a pleasure, and particularly so when they are encountered on the botanical field, or when, as so often happens, they help to make things go smoothly and well if the climber is delayed by bad weather in some Alpine hut. These botanists from Turin knew the district well, and showed me a spot where the dingy *Swertia perennis* grew, but later I found an acre of it on a damp slope in descending to Lanslebourg.

Lanslebourg is a big village at the foot of the pass on the French side, at about 4,600 feet. The Hotel Valloire is fairly comfortable. I remained there a week, and made it the centre for some delightful excursions. It is within an easy drive of Modane, at the mouth of the great tunnel, and lies almost under the shadow of the mighty Dent Parrachée.

But before leaving Mt. Cenis I came in for the end of the 1907 summer meeting of the Académie de Géographie Botanique, whose secretary courteously invited me to join the party. They were particularly struck with the great number of rare species of *Carex* I had found in the district. Mons. Petitmengin, whose untimely death in 1908, at the age of 27, was not noticed in any English journal, was one of the leading spirits of the party, and was largely responsible for the itinerary and subsequent report. Marcel Petitmengin, who had a great faculty for making friendships, is best known for his determination of some new Chinese and other *Primulas*, which had been

sent to the Jardin des Plantes at Paris, to Kew, Florence, Berlin, &c.

Space does not allow me to mention any of the plants on the Col du Petit Mt. Cenis, nor in the romantic Val Savine, which leads to the Col de Clapier, nor on the steep arête of Mont Lamet. It is doubtful if Alpines could grow in greater splendour than in some of these places. In one spot, which shall be nameless, the flat rocks close to a broad mountain path for 50 yards or more are blue with the azure blossoms of *Eritrichium nanum*; a little lower, the tiny pink or white flowers of *Androsace glacialis* everywhere attract the eye; a scramble up some of the higher rocks, and the climber is confronted with the great yellow corollas of *Geum reptans*, whose very audacity in such a place would take the breath away had he not been accustomed to see this handsome flower among the rocks at 10, 11, and even 12 thousand feet above the sea. Nor are the everyday Alpines absent from Mt. Cenis—Gentians and Campanulas, *Phyteumas* and *Violas*, Orchids, Lilies and Alliums are in the greatest profusion, and vie with one another in beauty.

About Lanslebourg, of course, the vegetation is less Alpine in character, and the steep Pine woods above the village yield many a fresh plant. On descending the well-engineered road towards Modane the flora rapidly becomes of a more southern type. *Orobanches* abound, and *Carlina* Thistles of various kinds, *Linum* shows its golden heads, and soon the air is perfumed with the scent of Lavender, while a little further down is a wayside manufactory of Lavender water, whose *patron* has bestrewn the high road for 100 yards with the fragrant spikes, just in the manner in which tan or straw is sometimes strewn about an English street to deaden the sound of passing vehicles.

In conclusion, I may refer to the most recent important botanical work on the district of Mt. Cenis by Prof. Oreste Mattiolo, the genial professor of botany at Turin. In April, 1907, he published *La Flora Segusina dopo gli studi di G. F. Re*. In addition to a catalogue of all the flowering plants and Ferns found since Re's *Flora Segusiana* (1805), a revised and translated edition of which was published by Caso in 1881, Dr. Mattiolo gives a biographical sketch of the work done in the district by botanists from the earliest times, arranged accordingly to their nationality. The only two English botanists whose work is recorded are G. Edward Smith, who bought the Linnean Herbarium, and John Ball, the famous Alpinist and botanist, who died in 1889.

On the authority of this work of Prof. Mattiolo no fewer than 2,203 species and 279 varieties of Phanerogams and Ferns had been recorded from the Mt. Cenis district before April, 1907, whereas according to Sig. Fiori, the whole Italian flora in 1907 comprised 4,137 species and 3,168 varieties and sub-species. These figures may be compared with the 4,354 species enumerated by Coste (1906) in his *Flora de la France* (including Corsica), and with the 2,534 species in Schinz and Keller's *Flora der Schweiz* (revised French edition, 1909).

Thus it will be seen that more than one half of the total number of Italian species have been found at Mont Cenis and the Valley of Susa. *H. Stuart Thompson.*

NURSERY NOTES.

HIPPEASTRUMS AT CHELSEA.

THESE bulbs are now at their best, and the gorgeous display of magnificent flowers at Messrs. J. Veitch & Sons' Chelsea nursery will continue for a fortnight, or longer time, according to the weather. Crimson is the predominant colour; and there are some grand feathered varieties having white on crimson grounds of various tones. The trumpet-shape blooms, with more or

less reflexing points to the segments, are most in demand.

The varieties named below were among the finer observed on the 13th inst., viz., Orbona, a bold crimson; Leonato, one of the best, a true circular bloom of great substance; Mer-

the firm, Mr. James Stredwick, was induced to take up the culture of the Dahlia about 20 years ago when he obtained the 2nd prize at a small local flower show. As his success in exhibiting grew, he turned his attention to the raising of new varieties. His first good thing was a dark

exhibition flower, but when it is grown in the garden it causes some disappointment. With many of the best show kinds, the flowers hide themselves so in the leafage that their effectiveness is lost. The demand now is for varieties of stronger constitution, and with long flower stalks, so that the blooms may be seen. It is in this direction that Messrs Stredwick & Son are working. Their seedlings each year number many thousands, and we saw this year's complement, just after the seedlings had been pricked off for the first time. The seedlings will be planted out later, and will provide perhaps 20 or so that may be considered worthy of perpetuating. Next year they will show more of their true worth, and then it will be decided which are to be placed in commerce. Each year Messrs Stredwick show, and win prizes with, something fresh, as our reports of the National Dahlia Society's exhibition testify yearly. Of the many trophies or medals which this house has won in competition, none is prized more highly than the gold medal secured last year at Seattle, U.S.A., when their varieties beat all others in the trials undertaken by the Alaska Yukon Exhibition. A difference was seen in the varieties as the roots were laid out in the propagating houses: some were extremely coarse, others had comparatively thin stems and small roots. Generally the stiff, erect-stemmed varieties, such as are desired, have very coarse roots and stem. In some, such as in *Invernia*, the side shoots are few, but many need a vigorous thinning of the laterals. The Dahlia needs much moisture, as well as food, during the summer, and therefore an adequate water-supply is essential. This is provided by the Roar, which has carved out its bed many feet down, the banks being delightfully planted with shade and water-loving subjects. A small engine pumps the water to the highest level of the nursery, and pipes convey it to every part. Messrs. Stredwick send plants all over the globe, and especially to Australia and America. They are packed as dry roots in the autumn from plants grown in small pots. The firm has of late years entered the Chrysanthemum field, and has raised one or two good varieties, including *Mary Farnsworth*, figured in *Gardeners' Chronicle*, November 20, 1909, p. 347, on the occasion of its receiving the Award of Merit of the Royal Horticultural Society. If as much success is attained with these plants as with Dahlias, our gardens, as well as the Chrysanthemum shows, will be enriched



FIG. 112.—WALM-GATE HALL, LOUTH, AS SEEN FROM THE SOUTH-WEST.

cade, a rich, glowing crimson, having a white feather in the middle of each segment; Gallita, a flower of a deep crimson tint, and orange-scarlet towards the tips of the segments, the blooms are above the usual size; Siren, a bloom of a bright scarlet colour, with a pleasing white border and pretty markings; Linda, cerise, an unusual colour, moderate as to size of flower; Florentine, of cherry-red tone, with markings in white in the form of feathering; Chromes, a big flower of the finest shape, in colour crimson, and the points of the segments markedly reflexed; Hermia, a flower of middle size, royal purple in colour, toning down to a lighter tint; Hygiene, a white flower having edges of scarlet on the segments; Favo, of crimson shade, having tessellate marking; Orosa is a purplish-crimson variety of medium size. Many young bulbs had flower-buds about to expand, giving promise of some fine additions. F. M.

A DAHLIA NURSERY.

THE visitor to Hastings will remember the delightful environs of the town, nowadays so accessible by means of the electric tram service. The London road, on the way to Ore, passes through the lovely Silverhill Park, and here, screened on all sides by tall trees, is situated the nursery of Messrs. James Stredwick & Sons, Dahlia specialists. The grounds are not very large, not extending much beyond two acres, but when it is remembered what the nursery has turned out in the way of sterling novelties, it will be conceded that the size gives no indication of the importance of the position occupied by this nursery. The natural beauties of the spot tempt the lover of fine scenery to prolong his visit; for what is prettier than woodland scenery with hill and dale, and charming water torrent, dropping some 60 feet below, as does the old Roar stream! The grounds contain the necessary propagating houses, and one very large glass structure for the growing of Chrysanthemums; beyond these almost every foot of the land is spade dug. The soil is heavy, rather too shallow to permit of trenching; but what there is consists of a splendid loam, and, with plenty of horse manure incorporated with it, the Dahlias obtain all they need. The senior member of

maroon flower named after his son Harry, the other member of the firm. This was quickly followed by such well-known kinds as *Magnificent*, *Night*, *Eclipse*, and *Mayor Tuppenny*. Others of the older sorts raised at Silverhill are *Uncle Tom* and *Maurice Welsh*, and although these have been superseded in recent years, they enjoyed great popularity when they were new. Later introductions of Messrs. Stredwick, to mention only the best, are: *J. B. Riding*, *W. F. Balding*, *Thos. Parkin*, *Sirius*, *Ella Draemar*, *Fairy*, *Mrs. Macmillan*, and, recently, *Harold Peerman*, *C. E. Wilkins*, *Ivernia*, *H. H. Thomas*, *Red Admiral*, *Indomitable*, and *Iolanthe*.

The Cactus Dahlia is a splendid subject as an



FIG. 113.—FORMAL GARDEN AT WALMSGATE HALL.

WALMSGATE HALL, LOUTH.

(See figs. 112 to 115, also Supplementary Illustration.)

ON the eastern coast of Lincolnshire midway between the market towns of Alford on the south, and Louth on the north, and distant some 12 miles from the seaside town of Mablethorpe, is situated the estate of Walmsgate, the property and residence of T. Dallas Yorke, Esq. The undulating chalk hills of the Lincolnshire Wolds form the characteristic feature of the landscape. Over the greater part of the chalk formation the soil is very thin, but in the lower levels it is often of considerable depth, and of more than average quality.

The estate of Walmsgate, extending to some 1,000 acres, is intersected by the great road from London to the north: the gardens, some 7 acres in extent, occupy the side of a slope to the west of the roadway. Shelter is provided on the north and east sides by woods of Beech and Larch. The characteristic feature of the gardens is compactness, for, though they are small and exhaustively planted, no overcrowding occurs. The general plan consists, for the most part, of shrubberies, laid out on natural lines. These follow the boundary, the greatest length extending from east to west. On the western extremity, the shrubberies give place to a bowling alley, flanked on either side by a single line of formal clipped Hollies; toward the north stretch single lines of Bamboos, intersected by a pergola planted with hardy ornamental vines.

Near the centre of the estate are the bog garden (see fig. 114) and the herbaceous ground. Rough steps lead from the former to a stretch of lawn immediately beneath a fine, old specimen of *Sedrus Libani*, one of a group of four. At this spot the formally-laid-out portions of the gardens open to the view, together with the main entrance to the residence. Immediately on entering the garden from the Hall is seen the view shown in the Supplementary Illustration. In the distance are the bog and herbaceous ground, the latter being separated from the kitchen garden by a Yew hedge, 10 feet high. In the foreground, in a recess, formed by

four trees of *Thuya orientalis*, is a plaster replica of an old seat in the grounds of the Vatican. Upon the pilasters of the wall are pots, which, in summer-time, are filled with Zonal

hardy subjects, chiefly bulbous. *Crinum Powellii* and its forms succeed on either side of the archway. The formal garden opens directly from this wall, as is shown in fig. 113. The design is



FIG. 115.—WALMSGATE: THE ROCK-GARDEN IN SPRING-TIME.

Pelargoniums. The wall and pillars are constructed with the object of accommodating rock-plants. The various plants employed include *Androsace*, *Antirrhinum*, *Campanula*, *Hypericum*, *Onosma*, *Opuntia*, and *Silene*. The border under the wall is devoted to hardy and half-

laid down in pavement. This garden forms a sheltered spot in springtime, and is gay with flowers at all seasons. Three small pools, with intersecting spaces as panel beds, occupy the central vista, and, grouped on either side, are two series each of five beds; the centre beds are raised by brickwork in a manner that unites them in one. The corner beds are of oblong shape, and set at right-angles, being united in the form of the letter "L." The scheme of summer bedding embraces standard and pyramid flowering plants of such kinds as *Heliotrope*, *Fuchsia*, *Plumbago*, *Swainsonia*, and Ivy-leaved *Pelargoniums*. Of carpet plants, *Verbena*, *Iresine*, *Leucophyton*, *Mesembryanthemum*, fibrous-rooted *Begonia*, *Ageratum*, and others are utilised, though the subjects employed vary from year to year.

Enclosed by Yew hedges is the portion allotted to dwarf Roses, but the natural soil is not favourable to their growth, and Hybrid Teas alone yield some measure of success. Climbing Roses are liberally represented, and are grown over stumps, pergolas, and arches. Fig. 112 shows what was formerly the bedding-out garden. The beds are now filled with special soil and planted with Heaths and *Liliums*. Of the latter, *L. Hansonii*, *L. Henryi*, *L. monadelphum*, and *L. testaceum* are most successful; whilst, in ordinary soil, the forms of *L. elegans* and *L. umbellatum* give equally good results.

The formal tank, occupying the centre of the garden, is surmounted by an old marble well-head, having on the front panel a lion rampant upon a raised shield, and said to be a piece of old Florentine work.

To the south, is a series of water ponds, which link the rock garden (fig. 115), and, by skilful planting, are made to transition into the eastern shrubberies.

Hardy plants dominate every other interest at Walmsgate. The glass department is limited, and devoted mainly to the raising and growing of hardy and half-hardy subjects, either for permanent planting or the embellishment of the gardens in summer. The ground originally allotted to vegetables and hardy fruits has been



FIG. 114.—VIEW OF THE BOG-GARDEN AT WALMSGATE HALL, LOUHL.

encroached upon to enlarge the flower garden, so that, for some years past, other ground for the raising of fruits and vegetables has been found outside the garden proper.

Mrs. Dallas Yorke takes an especially keen interest in the gardens, and her love of the place is shared by her daughter, the Duchess of Portland. The gardener is Mr. Thomas Smith, who is not only a first-rate craftsman, but a frequent writer in the gardening Press.

PLANT NOTES.

RHODODENDRON (AZALEA) INDICUM HEXE.

THIS pretty little Rhododendron or Azalea, as it is generally termed in gardens, furnishes a good illustration of the fact that a plant may be distributed and fairly well known for years before its merits are generally recognised. It is now exceedingly popular as a market plant; but unlike most of the Indian Azaleas, which are grown as little bushy specimens on stems about 6 inches high, and in pots 5 inches to 6 inches in diameter, the variety Hexe is grown chiefly as tiny bushes in very small pots. When laden with its bright, ruby-red blossoms, it meets with a ready sale, and is exceedingly useful for indoor decoration. The small size of the pot in which this variety is grown readily admits of the plants being stood in the small jardinières of porcelain or metal which are now so popular. Some of the greenhouse Heaths have of late years been extensively grown in the same way.

For this particular variety we are indebted to the late Mr. Otto Forster, of Lehenhof, Germany, who raised it as long ago as 1878. In those days the little, Japanese, hardy Rhododendron or Azalea was looked upon as a distinct species under the name of *Azalea amone*, but it is now considered to be a variety of *Rhododendron indicum*. The variety Hexe was obtained by fertilising a flower of Duc Adolf von Nassau, a popular variety in the 'seventies, with the pollen of a good type of *amone*; that is to say, one in which the hose-in-hose character was very pronounced. Naturally, it was a great favourite with Mr. Otto Forster, but, as above stated, many years elapsed before it attained its present popularity.

The first to raise seedlings between the small-flowered forms of *Rhododendron indicum* and the ordinary varieties with large blossoms was the late Mr. Carmichael, when at Sandringham, in the 'sixties. These varieties, which were, I believe, distributed by Mr. B. S. Williams, of Holloway, aroused a deal of interest, and for a time were very popular, but they have now almost, if not quite, dropped out of cultivation. Some of these smaller-flowered forms are, however, obtainable, and make a suitable companion to the variety Hexe. Chief among them are *Caldwellii*, *calyciflora*, *obtus*, and *obtus* alba.

LILIUM SULPHUREUM.

LARGE numbers of this striking Lily are now being imported, and, in the days before the retarding of Lily bulbs became general, the species would have been exceedingly valuable, owing to its late-flowering qualities. Its proper season of bloom is usually considered to be summer and late autumn, and I have had good flowers at Christmas. However, it is now possible, by the retarding process, to have *Lilium longiflorum* and *L. speciosum* in bloom at the festive season, and a species that flowers naturally then does not gain special attention.

For many years *L. neilgherrense* was looked upon as supplying the last Lily flowers for the season, and in the period between 1880 and 1890 considerable importations reached this country. These imported bulbs met with a ready sale, for they could, as a rule, be depended upon to flower well the first season, but not after-

wards; in fact, *L. neilgherrense* never proved amenable to cultivation. It appears now to have become very scarce in its native habitat, as bulbs are seldom imported.

L. sulphureum (see *Gardeners' Chronicle*, September 15, 1906, fig. 77), however, may frequently be seen in a thriving condition. As might be expected from a native of Burmah, it is too tender for outdoor cultivation in most parts of the country, for even if the bulbs stand the winter, the flowers are developed so late that they do not expand properly. It is, therefore, as a greenhouse Lily that this species must be recommended, as it responds readily to a little artificial heat during the flowering period.

Though apparently the bulbs are collected and not cultivated specimens, they are firm and compact, and they travel well. The large bulbs so freely produced in the axils of the leaves have, no doubt, a good deal to do with the regular supply of bulbs. W.

CRINUM POWELLII.

IT is surprising that this beautiful bulbous plant is not planted much more freely, as its good qualities merit a more general appreciation.

The large, rose-pink flowers are produced in umbels on stout stems 4 feet high; I have counted as many as 16 flowers and buds on one stem. The flowering generally commences about the third week in July, and continues from six weeks to two months. The noble, arching leaves are 4 feet to 5 feet long, being attractive for several weeks before the plant is in flower. The species should be afforded a south or south-west aspect, exposed to full sunshine, and, if it is planted at the foot of a wall, so much the better. I have known plants to withstand 26° of frost with only a few boughs lightly placed over them for protection.

The bulbs should be planted in a good, rich soil, which should be well-drained and not less than 2 feet in depth. The base of each bulb should be placed 1 foot deep and quite 2½ feet apart. A single bulb will, in a few years, form quite a group of bulbs. One of the chief points to observe in the culture of this plant is to allow it to remain undisturbed for many years, when it will not fail to produce an abundance of flowers.

Where the natural soil is of a cold, retentive nature, or the situation is in low-lying districts, it is advisable to plant on a mound, also to place a layer, about 9 inches or 1 foot in thickness, of clinkers or broken bricks at the bottom of the hole, to ensure good drainage. During the winter a layer of about 3 inches of coal ashes or leaf-soil should be placed over the bulbs, and during very severe weather bracken Fern or similar light material should be placed round the necks of the plants, and over this a few boughs of evergreens to keep the wind from scattering the Fern and to give the group a tidy appearance. Although this *Crinum* succeeds best if it is given plenty of moisture at the roots when in active growth, I have known it to pass through a long period of drought with very little attention, and not show the slightest sign of injury. A. G. Shadbolt, Blackmoor Gardens, Liss, Hants.

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Weetwood, Yorkshire.

Arrangement of plants.—In the springtime a thorough cleansing of the pots, stages, and glass, together with a rearrangement of the plants in the houses is appreciated. Place any unsightly specimens that may be required for propagating purposes where they are least in evidence. Every effort should be made to afford the plants as much light as possible, without exposing them to excessive sunshine.

Isolepis gracilis.—This is a useful ornamental plant for the greenhouse or conservatory, and it makes a very pretty effect when employed as an edging to the plant stages. When subjected to warm treatment at this season the plant increases in growth very rapidly. Propagation may now be effected by division of the old plants.

Use a light, turfy compost mixed with leaf-mould and sand. Pot firmly, and afford ample material for drainage. *Isolepis gracilis* is most serviceable for decorative purposes when grown in 3 or 4-inch pots.

Gloxinias.—The progress of the seedlings must be followed by careful observation. As the days become brighter, afford increased supplies of moisture. Discontinue the spraying of plants overhead as soon as the flower-buds begin to develop. The plants intended for successional batches will need repotting. The *Gloxinia* should never be cramped at the roots, as it grows rapidly, but is seldom able to recover from the effects caused by being too long in small pots.

Musa Cavendishii.—This stately, ornamental foliage plant can only be cultivated properly where ample room is available in glass-houses. Its propagation is readily effected by suckers. Detach them, if possible, with a few roots adhering, and place them singly in small pots, which may be plunged in a brisk bottom heat in a propagating case. The plants are gross feeders, and succeed best in a rich, fibrous loam, with a little lumpy peat added. When in active growth they require frequent applications of weak, farmyard, liquid manure. When cultivated expressly for decorative purposes, they are most convenient in large pots or tubs. Sponge the foliage occasionally to prevent insect pests.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Seed sowing.—Sow Broccoli seeds for the main crop, but defer the latest sowing until about the first week in May. The sowing of the latest varieties must depend, to some extent, on the time the ground intended for the crop will be available. They may follow early Strawberries, and, beyond clearing the ground of these, may be planted without any deep stirring of the soil. The seeds should be sown on rather poor ground, so that the seedlings may be grown as sturdy and as short-jointed as possible. Sow thinly in drills drawn at least 1 foot apart. The same remarks apply to Savoy and all Winter Greens, which should be sown about the end of April. Dwarf Curled Savoy and Dickson's Late Spring are amongst the best varieties for furnishing a winter supply. Borecole Dwarf Curled is also a good hardy winter vegetable. If the young seedlings are attacked by fly, they may be freely dusted with soot and lime in the early morning while the dew is on them.

Onions.—Those sown early in the year and duly hardened off will now be ready for planting on ground specially prepared for them in early winter. The only preparation necessary now will be to fork the surface of the bed, and, when sufficiently dry, to crumble the soil by treading. The young plants may be carefully planted in drills drawn 18 inches apart, pressing carefully around the roots to keep the plants in position. Should the weather prove dry, water each plant singly, and run the Dutch hoe between the rows to prevent evaporation of moisture.

Celery.—Plants intended for the main crop should now be ready for pricking off on a south border, where they can be protected by spare lights. The ground should receive a good dressing of well-decayed manure placed about 3 inches under the surface. A space of 8 inches should be allowed between the plants, so that, when planting time arrives, they may be lifted with a good ball of soil attached and placed in the trenches, without much disturbance to the roots. Celery is a moisture-loving plant, and should be freely syringed twice daily, in dry weather.

Brussels Sprouts.—A batch of seedlings for an early crop may be pricked off in an open border, allowing 6 inches between the plants. These, if properly hardened off before planting out, will require no protection beyond shelter from rough winds. Occasional waterings in dry weather will be necessary to keep the plants from becoming stunted. A small sowing may be made in the open border to provide plants for the latest supply, from which Sprouts may be had after the main crop is over. Sutton's Dwarf Gem is a suitable variety for this purpose.

Chervil and Lettuce.—Small sowings of Chervil and Lettuce should be made frequently. If slugs are troublesome, the ground should be freely dusted with hot lime early in the morning before the slugs have returned to their haunts.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL,
G.C.B., Moulton Paddocks, Newmarket.

Grape thinning.—The bunches on the permanent vines intended to furnish ripe Grapes in June and July will now require thinning. It is a common practice to thin the bunches in a very early stage, but, as stated in a previous calendar, I do not advise the thinning until the berries are set. The number of bunches to be left on a rod must be determined by the variety and the vigour of the plant; but in no case is it advisable to leave more than one bunch to each lateral. Thinning of the berries may be commenced as soon as their shape can fairly be distinguished. The shoulders of the bunch should be trimmed first, then the lower part or point, afterwards working upwards. The outline of the bunch should be considered during the process of thinning. Use a small, pointed stick to steady the bunch. Neither the hand nor any other parts of the body should come in contact with the berries, as this would cause them to be rubbed and disfigured. A very small mark made on the berry at this stage will increase in size as growth advances, and be very conspicuous when the fruit is matured. It is advisable to leave the outside berry on each foot-stalk, cutting out those nearest the centre. This gives the bunch a larger area and each berry more space to develop, but different varieties require different treatment. In the case of loose-stemmed and round-berried varieties, remove the centre one only, and leave the two outside; but with large, long-berried varieties, such as Madresfield Court, the centre berry should be left. In the shoulders, the berries at the top should be left rather closer than elsewhere. Some large-bunched varieties, such as Trebbiano and Barberossa, do better if the shoulders are tied up from the main bunch; but this is not advisable in other cases, as the berries never settle in position afterwards, and the top of the bunch has therefore a loose and untidy appearance.

Successional Fig trees.—These will require attention in the matters of watering, tying, pinching, and otherwise regulating the growths. More fresh air will be necessary as the sun gains power, but the lower ventilators of the house should not be opened for the present.

Ripe Figs.—These require great care in packing if the skin is to be preserved intact. They should be treated in a similar manner to that advised for Strawberries, with the exception that each fruit, after being wrapped in a leaf, should be encased in cotton wool. Soft fruits are often injured by employing too much packing material.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE,
Bart., Banford, Surrey.

Repotting Cattleyas and Lælias.—Some of these plants have recently passed out of bloom, and they will soon produce young roots from the recently-formed pseudo-bulbs. Others are commencing to grow, and they should at once be attended to in the matter of repotting. Among the species which need immediate attention in this respect are *Cattleya labiata*, *C. Gaskelliana*, *C. Shilleriana*, *C. Percivalliana*, *C. Harrisoniana*, *C. Trianae*, *C. intermedia*, *C. maxima*, and *C. amethystoglossa*, also such hybrids as *C. exoniensis*, *C. Fabia*, *C. Lord Rothschild*, *C. Iris*, *C. Venus*, *C. F. W. Wigan*, *C. Claudian*, *C. atlantica*, *C. Maronii*, *C. Clarkiae*, *Lælio-Cattleya elegans*, *L.-C. Myra*, *L.-C. Dominiana*, *L.-C. Feronia*, *L.-C. Clive*, *L.-C. Cornelia*, *L.-C. epicastra*, *L.-C. Nysa*, *L.-C. pallas*, *Lælia Mrs. M. Gratrix*, *Brassia-Cattleya Rolfeae*, and *Sophrone-Cattleya Marathon*. Seedlings now starting to grow will also need attention. In repotting strong, healthy specimens, it is advisable to remove them from the pots with as little disturbance of the roots as possible: in cases where roots are abundant, it is a good plan to break the old pot and to place the roots intact into new pots. Beginners should guard against over-potting. Unhealthy specimens, and any which have but few roots, should be turned out of the pots and cleansed. Remove the dead and useless pseudo-bulbs and repot the plants into receptacles as small as will contain them conveniently. Choice varieties which have deteriorated should be carefully divided, and the

pieces potted up singly. In this case, employ small pots furnished with copper wires, so that they may be suspended near to the roof glass. After a year or two they will have recovered their health, and may then be repotted in the ordinary manner and placed again on the stage. It is not necessary to retain many back pseudo-bulbs; about three bulbs to each leading growth being sufficient. The severed portions of rare species or hybrids which the grower desires to increase, should be carefully labelled, and packed closely and firmly together in a shallow pan or ordinary seed box filled with Sphagnum-moss or old, rough, potting material. Place them on a corner of the stage, keep them lightly sprayed until they break into growth, when they may be repotted.

Potting materials.—When repotting Cattleyas and allied Orchids, the pots should be two-thirds filled with clean crocks: on these place a thin layer of Sphagnum-moss to support the compost, which should consist of *Osmunda* and *Polypodium* fibres in equal parts. These materials should be chopped roughly and be well mixed together, adding sufficient small crocks to allow water to pass away readily. Pot each plant firmly and keep the rhizome on a level with the rim of the pot. In the case of specimens with long pseudo-bulbs, tie a few of the growths to neat stakes, that the plants may be held firmly in their places. After repotting, stand them in a shady part of the Cattleya or intermediate house; if exposed to strong sunshine, some of the older leaves may turn yellow and fall off. For a few weeks after potting keep the compost well on the dry side, as excess of water at this period is likely to cause the old roots to decay. A good plan is to water the compost around the edge of the pot with a watering-can having a small spout, and keep the surroundings fairly moist by syringing between the pots several times each day. Fresh roots will soon begin to push out, and quickly attach themselves to the sides of the pot, when the amount of water at the roots may be gradually increased, affording it at intervals instead of keeping the compost constantly saturated.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

Violets.—A supply of these flowers during the winter months is required in almost every garden. To obtain the best results, only the choicest varieties should be cultivated, and those which are known to force well. This term, when applied to Violets, is not infrequently misunderstood, for, to produce the best results, the plants must never be coddled, but receive an abundance of light and fresh air whenever possible. The preparation of the plants for flowering next winter must now be commenced. The best situation for them is one shaded by a north wall. The ground should have been previously well dug and manured with a liberal dressing of well-decayed farmyard dung. Make the soil firm, and secure a fine tilth by means of an iron rake. The single kinds being stronger growers than the double varieties, will require to be planted 1 foot apart. Divide the old plants, select the stronger and best crowns, and plant them in lines, using a trowel for the purpose. Very little attention will be required afterwards excepting to stir the soil occasionally with the dutch hoe and afford copious supplies of water during hot, dry weather. Damping the foliage by means of a syringe or a rose can in the early morning or evening will be beneficial, whilst dustings of soot and artificial manure will promote growth. Of single varieties, *La France* and *Princess of Wales* are most extensively grown; the flowers of both varieties possess great length and strength of stalk, and are profusely produced. Of the doubles, *Marie Louise* is perhaps the most popular; *Lady Hume Campbell* and *Neapolitan* are also to be recommended. *Comte de Brazza* is the best double white variety.

Seasonable work.—The hardening of plants preparatory to transferring them to the open ground must now be arranged in a systematic manner. Standard plants of Fuchsias and Pelargonium may be removed to a temporary shelter in the open ground, where a light protection can be afforded at night-time. The best plan is to

plunge the pots to the rims in ashes, as at this season the soil in them soon becomes dry, and it will prevent them being blown over by the wind. Standard plants of *Lantana*, *Swainsonia*, and *Heliotrope* should be moved to cooler quarters: many of the smaller bedding plants may be removed out-of-doors, where protection can be given them if necessary. Others of a less hardy nature that have been struck in heat should be removed to the cold frames. Large specimens of *Agave*, *Bay*, and other subjects employed on terraces and along walks during the summer should be removed to a sheltered place for a few weeks to become thoroughly hardened. Afford *Pentstemons*, summer-flowering *Chrysanthemums*, *Dahlias*, &c., an abundance of fresh air, removing the lights entirely whenever possible. Ventilate the frames at night-time when the weather is mild. The same remarks apply to hardy annuals which have been pricked off. Stir the surface of the soil occasionally to promote a free growth. The present is a suitable time for transplanting such subjects as the *Pampas Grass* (*Cortaderia argentea*), *Miscanthus*, and other plants of a like nature. If the stock requires to be increased, these can be divided at this season. Afford them a place sheltered from winds. *Gunnera*, *Rheum*, *Bamboos*, and other plants that succeed best when associated with water, may also be lifted, divided, and transplanted. Provide a barrow-load or two of specially-mixed soil for their planting. The pruning of tender shrubs should now be completed, and all grass edgings be neatly trimmed with the edging iron. Roll newly-gravelled walks whenever the ground is moist, and endeavour to get them hard as soon as possible. Cuttings of many of the more robust-growing rock plants will strike readily after the flowering period is over.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

The watering of wall trees.—It seems early in the season to mention the watering of trees out-of-doors, but in gardens where the walls are provided with permanent copings, it will be necessary to examine the borders now, especially where the soil is light or resting on gravel. Where this is the case, it may be necessary to give the borders a good soaking of water, which, at this time of the year, is best applied before noon to enable the surface to become as dry as possible before night-time, in case frost occurs. Special attention in regard to watering must be given to all newly-planted trees. Keep a sharp look-out for insect pests as soon as the fruits are set and the leaves commence to unfold, as this is the period when the leaf-eating maggot appears on the Apricot and Plum trees. The pest feeds on the young leaves, causing them to roll up, the maggots being inside; these should be crushed between the finger and thumb.

Sweet Cherries.—The trees are very subject to the attacks of the black aphid from the present time until the shoots have fully developed. If the pest is allowed to make much headway, the points of the new growths will be crippled, and irreparable damage will result. Look over the trees every few days, and wherever any fly is seen dust a little tobacco powder on the parts affected. This is quite harmless to the tree, and is best applied through a rubber distributor. Later, when the weather becomes warmer, the trees may be syringed frequently with *Quassia* extract, or some other safe insecticide.

Peach trees.—Where green fly is noticed on the young shoots, measures must be at once adopted to check the pest from spreading. The treatment advised for black fly on Cherry trees should be followed.

Hoeing.—Hoeing is most essential at this season of the year, whenever the weather is favourable. Although weeds are not much in evidence at present, the seeds will be germinating fast, and the frequent use of the hoe will have the effect of destroying the seedlings. Also, the occasional stirring of the surface soil will promote aeration, and likewise assist in retaining the moisture in the ground during periods of drought. The Dutch hoe is by far the best tool to use, as the operator does not need to trample the ground after it has been hoed.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations. The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, APRIL 25—Surveyors' Inst. meet.

WEDNESDAY, APRIL 27—
Roy, Hort. Soc. Exam. of School Teachers.

THURSDAY, APRIL 28—
Midland Daffodil Soc. Exh. at Birmingham Bot. Gardens (2 days).

SATURDAY, APRIL 30—
Brussels' International Hort. Exh. and Congress (4 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—48.7°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, April 20 (6 P.M.): Max. 61°; Min. 50°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 21 (10 A.M.): Bar. 30.2; Temp. 61°; Weather—Overcast.

PROVINCES.—Wednesday, April 20; Max. 59° Cambridge; Min. 45° Scotland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Perennials and Hardy Bulbs and Plants, at 12; Trade Sale of Miscellaneous Bulbs at 12.30; Japanese Lilioms and Seeds at 2; Palms, Plants, Bays, &c., at 3; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Burmese Dendrobies, Established Orchids, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Mountain Flora of Santo Domingo.*

Hispaniola, Santo Domingo, or Hayti, as it has been designated by geographers of different periods, although the largest island in the West Indies, except Cuba, is probably the least known of the larger islands. Therefore a few words of explanation may not be considered out of place. The names Hispaniola and Hayti have been applied to the whole island, which was settled by Bartolomeo Columbus, in 1496, and, hence, is the oldest European settlement in America. Subsequently it was divided between the French and Spaniards. The western and smaller part was occupied by the French until about a century ago, and was known as Hayti; the eastern or Spanish part as Santo Domingo. Now they constitute the Haytian and Dominican Coloured Republics. The whole island is about 30,000 square miles in area, and the mountains rise to a height of nearly 10,000 feet, being the loftiest in the West Indies. Hayti constitutes about a third of the island, and during the French occupation, and subsequently, has been thoroughly botanised. The well-known botanists, Plumier,

Jacquin, Swartz, Tussac, Poiteau, and Jacquemont, were among the earlier explorers. On the contrary, very little was known of the flora of Santo Domingo, and nothing of it above 5,600 feet, until, in 1887, Baron Eggers ascended the Pico del Vallé, a height of about 8,760 feet. The novelties of his collections have been published by Dr. Urban and other botanists from time to time, but no general sketch of the vegetation has hitherto appeared. Making use of Baron Eggers's report (Petermann's *Geographische Mittheilungen*, 1888, vol. xxxiv., pp. 35-41, nebst Kräte), Dr. Urban has now compiled a connected account of the results of his journey. On the ascent, *Pinus occidentalis*, a five-needed Pine, peculiar to the island, was first encountered in the low altitude of about 650 feet. Higher up it forms vast forests, extending to the highest peaks, through an altitudinal range of 8,350 feet. A Walnut (*Juglans jamaicensis*) was collected in the intermediate forest. This species has also been found in Porto Rico, but it has not been rediscovered in Jamaica, which leads one

only two days' travelling, we can realise that much more remains to be done than was actually accomplished.

Dr. Urban, who, as most botanists are aware, has spent a life-time in the investigation of the flora of the West Indies, states that the mountain flora of Santo Domingo differs essentially from that of the other islands—Cuba, Jamaica, Porto Rico, &c. It consists, for the greater part, of species, the half of which are known Continental species, restricted in the West Indies to the heights of Santo Domingo, and the other half, new species; whereas, in the other islands, the plants of the highest peaks belong largely to species occurring also at lower levels. The new species belong to the genera *Peperomia*, *Pilea*, *Loranthus*, *Miconia*, *Fuchsia*, *Gaultheria*, *Lyonia*, *Cestrum*, *Scrophularia*, *Chaptalia*, *Dryopteris*, *Danthonia*, *Pæpalanthus*, *Alchemilla*, *Euphorbia*, *Sphacele*, *Valeriana*, *Erigeron*, and *Gnaphalium*. Explaining the affinities of the upland flora of Santo Domingo, Dr. Urban finds them specially Andine, a conclusion we can hardly accept from the scanty material to hand.



MR. THEODORE VAN WAVEREN, CHAIRMAN OF EXECUTIVE COMMITTEE FOR THE HAARLEM INTERNATIONAL SHOWS.

to suspect the correctness of the habitat originally given. The elegant *Fuchsia triphylla*, on which the genus was founded, originally discovered by Plumier in Hayti, was met with at a comparatively low altitude, and a new species, *F. Pringsheimii*, Urban, was added to the genus. These are the only members of the genus known to inhabit the West Indian Islands.

Proceeding to Dr. Urban's analysis of the composition of the vegetation, from 2,000 metres (about 6,650 feet) upwards, we find that the element constituted by species of genera of almost world-wide extension is very considerable, embracing the genera *Aster*, *Ranunculus*, *Gnaphalium*, *Lycopodium*, *Lobelia*, *Agrostis*, *Trisetum*, *Carex*, *Hieracium*, *Asplenium*, *Scrophularia*, *Alchemilla*, *Valeriana*, *Erigeron*, and *Euphorbia*. The new species number only twenty, but when we consider that the while collection was the result of a few hours' herborisation during

SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution on Monday, April 25, when papers will be read by Mr. R. F. GRANTHAM (Associate) and Mr. W. MENZIES (Fellow) on "Road Making and Dust Prevention." The chair will be taken at 8 o'clock.

FLOWER SHOWS AT BIRMINGHAM.—Encouraged by the great success of the Orchid and Rose shows held at the Botanical Gardens, Edgbaston, last year, the committee of the Birmingham Botanical and Horticultural Society has decided to hold two shows during the present year upon the following dates:—June 8, Orchids and early-summer flowers; and July 20, Roses and midsummer flowers. Honorary exhibits are invited. Schedules may be obtained from the hon. secretaries, Messrs. HUMPHREYS and WHITELOCK.

MR. THEODORE VAN WAVEREN.—In successful undertakings there is, more often than not, some silent, little-known worker to whose energy and efforts the result is due. The great Jubilee Show which is now taking place at Haarlem is a case in point. All visitors are unanimous in pronouncing it a great success, but few, probably, know how much its organisation has depended on Mr. WAVEREN. It was a wise choice two years ago, when active preparations began, to appoint Mr. THEODORE VAN WAVEREN to the important post of chairman of the executive committee. The son of Mr. G. H. VAN WAVEREN, one of the grand old bulb-growers of the Netherlands, who, despite his nearly 80 years, is still a visitor to Vincent Square in the spring, Mr. THEODORE VAN WAVEREN is the managing director of a very large business, that of Messrs. VAN WAVEREN & SONS, with which was incorporated, in 1909, that of J. H. KERSTEN & Co. Electra, City of Haarlem, Mountain of Snow, and King of the Reds (*Hyacinths*), Van Waveren's Giant and Thalma (*Narcissi*), and the grand new orange coloured early Tulip General de Wet are names that will always be associated with either VAN WAVEREN or KERSTEN. Mr. THEODORE VAN WAVEREN first joined the firm about 30 years ago, and since then the volume of business has steadily increased. The thanks of the British jurymen are due to Mr. WAVEREN for his kindness and attention.

*Zur Hochgebirgsflora von Santo Domingo. Symbolæ Antillanæ seu Fundamenta Floræ Indiæ Occidentalis, vol. vi., fasc. 2, pp. 280-292.

† See *Gardeners' Chronicle*, 1882, vol. xviii., p. 263.

SWINE FEVER.—The President of the Board of Agriculture and Fisheries has appointed a Departmental Committee to enquire into the cause of the continued prevalence of swine fever in Great Britain, and to report whether it is practicable to adopt any further measures with a view to secure its speedy extirpation.

SILENE SCHAFTA.—A note by Herr R. FISCHER in *Die Gartenwelt* (xiv. 13, March 26, 1910) refers in terms of praise to the Caucasian species of *Silene*, *S. Schafta*. Inconspicuous in its vegetative stage, it presents an attractive appearance when flowering. Numerous, much-branched, pendent inflorescences, bearing flowers, each on a short stalk, form a beautiful carpet of blossom. The colour of the flowers is bright-red, fading to a violet tone: the period of flowering is from August to September. *S. Schafta* requires a sunny position and a light soil. It may be reproduced by division, but is best raised from seed.

LUNARIA BIENNIS VAR. CORCYRENSIS.—The blue-flowered variety of *Lunaria biennis* occurs in the Island of Corfu, and nowhere else. According to Herr C. SPRENGER, who contributes a note on the plant to *Die Gartenwelt* (xiv. 13, March 26, 1910), it differs completely from *L. biennis*, and should be regarded as a true species. In Corfu, the plant adorns the hedges, and even invades the road-side. It either climbs or grows prostrate on the ground, but at the time of flowering, from March to May, it lifts itself up, climbing over the hedgerows in order to expose its large, blue, cruciferous flowers to the light. Herr C. SPRENGER finds *L. biennis corcyrensis* an admirable plant, growing well in company with *L. biennis*, *biennis alba*, *rediviva*, and *purpurea* under the shade of Palms. In Corfu, seed sown in July and planted out in October blossom in the following April.

ROSES IN AUSTRALIA.—Mr. Andrew Kingsmill has sent us the following extract from a letter, describing a garden near Melbourne. It goes to show that Roses are cultivated with effect and with gratifying results in that district. Our own growers will notice that the *Rosa gigantea* flowers freely, so that in some respects, at any rate, the Australian Rose-grower has experiences denied to ourselves. The note is as follows:—"Sinica Anemone is good here in the autumn and winter, but Brunonis is over too quickly. I like Moschata alba very much. *Gigantea* flowers freely nowadays, and I have raised some seedlings crossed with good Teas, so hope to get something good. A little Rose I like is Morgnot, a single after the style of Carmine Pillar, but a good shape, and most free in flowering, as one crop is only over, for another to come on. It lasts well in water, and is very bright in the garden. General McArthur, Richmond, and Rhea Reid are our best reds. Hector McKenzie promises very well; it is very sweet."

SPICE AND PERFUME-PRODUCING PLANTS.—The enormous demands made by the civilised world for luxuries is illustrated strikingly in an article by Mr. J. A. ALEXANDER, on "Spice, Condiment, and Perfume-producing Plants," which is published in Vol. 35, Part III., of the *Journal of the R.H.S.* For the purpose of obtaining these substances, the modern world lays under contribution upwards of 80 different species of plants, and the value of the imports, to this country alone, of spices and condiments is upwards of half-a-million pounds sterling per annum. The article is well and profusely illustrated, and gives, under the headings of the several spices, an account of the plant from which each is derived, its distribution, and the part of the plant from which the spice or condiment is obtained.

CANADIAN SEED IMPORTS.—Some idea of the amazing development of Canada may be gained from the statistics of values of seed imports for the past year. The total value of imported seeds of all kinds was upwards of two million dollars. Of this sum, 1,900,000 dollars went to the United States, 73,000 to Great Britain, 36,000 to France, and 23,000 to Germany. The *American Florist* (April 2, 1910), which quotes the above figures, draws attention to the huge volume of the trade in seeds carried on between Canada and the United States.

MR. THOMAS LUNT.—Mr. THOMAS LUNT, Sen., who has recently retired from the position of head gardener to Sir M. SHAW-STEWART, at Ardgowan House, Renfrewshire, has served in that capacity for the past 57 years. Mr. LUNT is an Englishman, and 60 years ago was employed for a period of seven years in the gardens at Eaton Hall, Chester, under the late Mr. COLLINSON. At the expiration of that time, when Lady OCTAVIE, sister of the late Duke of WESTMINSTER, left Eaton, upon marrying into the STEWART family, Mr. LUNT, who was then fore-



MR THOMAS LUNT, SENR., WHO HAS RECENTLY RETIRED FROM ARDGOWAN.

man at Eaton, went with her to be gardener at Ardgowan. Visitors to the West of Scotland will scarcely need to be told that Ardgowan has always been amongst the best-maintained gardens in that district; they are not specially remarkable for particular plants, but they furnish a first-class representation of present-day gardening. Mr. LUNT and his liberal patron were always on the lookout for new plants suitable for the Scottish climate. By the kindness of Sir M. SHAW-STEWART, Mr. LUNT will continue to reside in the garden house at Ardgowan, and it is to be hoped that he will spend there many years of well-earned rest. Mr. T. LUNT, Keir Gardens, Dunblane, is a son of the veteran gardener at Ardgowan.

THE "DEMONSTRATION EGG TRAIN."—On April 15, the first "demonstration egg train" to be run in this country left Paddington for S. Wales. The adoption of the well-known, excellent American method for the dissemination of knowledge on agricultural matters is due to the joint action of the National Poultry Organisation Society, the Agricultural Organisa-

tion Society and the Great Western Railway. The train will stop at all the important stations in S. Wales, lectures will be given by travelling experts, and those interested in the industry will have opportunities of seeing demonstrations on the best methods of packing and marketing eggs and poultry. It was but a week or two ago that we drew the attention of our readers to the inauguration, in the Western States of America, of an agricultural and horticultural demonstration train, and expressed the hope that this peripatetic method of instruction might be adopted in this country. Now that this aspiration is realised with respect to an allied industry, we are encouraged to believe that the time is not distant when it will be realised also for the larger agricultural and horticultural industries. One great advantage of this system of instruction is that the very best information is rendered available to people living in isolated districts. Second-rate and secondhand instruction is worse than useless, and brings the attempt to disseminate scientific knowledge and, incidentally, scientific knowledge itself, into disrepute. But if men who really know the intricate business of agriculture and horticulture could be induced to go on tours of inspection and instruction, an incalculable benefit to agriculture and horticulture would accrue.

SUGAR-BEET IN ENGLAND.—In a letter to the *Times* on April 4, Sir WALTER GILBEY discusses somewhat pessimistically the possibilities of the Sugar-beet as a crop for farmers in this country. He points to the earlier unsuccessful efforts which were made in Suffolk and in Essex, and is inclined to think that seasonal conditions—particularly the lack of sufficient sunshine—are against the successful cultivation of the Sugar-beet here. As we have pointed out on more than one occasion, it is time that discussion should give place to, or, at least, be supplemented by, organised experiment. Since the old experiments, the yield of sugar obtainable from the plant has been increased considerably. The Sugar-beet industry flourishes over larger tracts of Europe, and the system of cultivation has been reduced to a fine art. Could not our agricultural colleges institute a combined and prolonged experiment in order to settle this question once for all? For an agricultural problem, this question of the commercial cultivation of the Sugar-beet is extremely simple. The methods have been devised and practised for years on the Continent; the determination of the amount of sugar yielded by roots is ascertainable readily and accurately by the polariscope from examples taken straight from the field. The average yield per acre may be found by extensive experimental cultivation, and thus the possibility or impossibility of this crop finding a place on our farms may be determined once for all. We confess that, for our part, we are tired of the interminable discussions about a matter which experiment can alone decide. If this were an unsolved problem in America, a dozen or fifty agricultural experiment stations would have taken it up, and within five years the farmers would have known whether to go in for Beet or to leave it alone. But, as *Report 90* of the U.S.A. Department of Agriculture indicates, the problem has been solved in that country, and the extended cultivation of the Sugar-beet in America is advocated officially.

MR. JAMES LAWSON.—After a period of nine years as head gardener at the Horticultural College, Swanley, Mr. LAWSON is taking up a fresh appointment under Dr. LILIAS HAMILTON, at the Studley College, Warwickshire. During his stay at Swanley, Mr. LAWSON has made great improvements in the gardens and grounds, and his practical knowledge has been of much value to the students. Mr. LAWSON has served on the executive of the British Gardeners' Association, and is a well-known visitor at the R.H.S. shows.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PRUNING FRUIT TREES AFTER PLANTING.—

On p. 253, *A. D.*, in commenting upon my paper on the above subject, published in the *Journal* of the Royal Horticultural Society, especially referred to the following sentence: "I think it might be taken as the rule that, when a tree is dug up and the roots pruned ready for planting, not more than one-third of the original roots remain, and that the balance between the roots and the top had been disturbed to that extent." If *A. D.* has misunderstood my meaning, I fear there are others who may have done so. I intended the sentence to mean that the rule was for two-thirds of the roots to be either cut or broken off in digging up a tree and in the necessary cutting away of injured roots; which, of course, means the feeding or fibrous roots of the tree. I can assure *A. D.* that I am convinced the practice I recommend is the right one for trees planted after November, and will, in time, become universal. *F. Lansdell, The Haven, Woolhope Road, Worcester.*

OLD ENGLISH DOUBLE WALLFLOWERS.—I

gather from the description of the double Wallflower sent you by Mr. A. Hope (see p. 234) that it is dwarf, and has small, double flowers of a pale yellow hue. That fits the description of the variety which came into commerce many years ago under, I think, the designation of Harper Crewe's variety. But, pretty as it was, or is, it fell short of that very fine form we used to see in the tall, double yellow, red, and black Wallflowers, which were fairly plentiful in gardens 40 years ago. Possibly they still exist somewhere, especially the yellow and red—a dark red, yet not to be confounded with the true old black, which was always the more rare. If any readers have plants of these grand old "Walls," would they send cuttings to the Royal Horticultural Gardens, Wisley? I am sure they would be gladly received there, and cared for. It would be a good thing could we establish a sort of resurrection garden, where such old plants that are threatened with extinction could be still cultivated. *A. D.*

ANEMONE SULPHUREA.—Mr. Jenkins' note (see p. 195) on "Root-systems of imported and home-raised seedlings" is both interesting and useful, while the photograph of imported and home-raised roots of *Anemone sulphurea* is very characteristic. It is indeed surprising that "a bed of *A. sulphurea* in full flower is almost unknown in gardens," and yet few plants are more beautiful. As Messrs. Cutbush & Sons have shown what can be done from home-raised seedlings, I would suggest that the latter be not only tried in flower-beds, but also on turf in parks, and especially on rough pasture, where a group of the plants would look remarkably well. Any well-drained slope, preferably facing N.W. or S.E., should be suitable, but the species does not like much lime, for *A. sulphurea* is the variety of *A. alpina*, which naturally prefers granitic soil to limestone. The seed is unfortunately difficult to germinate, but it is collected with the greatest ease, though care must be taken to get it when just ripe and yet before it has blown off. In a couple of hours' absence from a Swiss hotel at the end of August I collected enough seed of this plant to distribute among a dozen friends and public gardens at home, while the balance, when sold to the trade, brought in enough to cover three days' hotel expenses. It is always easier to criticise than to say something constructive or original, but I cannot altogether agree with Mr. Jenkins when he says that plants "occupying rocks (or very stony ground) in their native habitats" are particularly difficult to establish from collected specimens. Surely many *Saxifragas*, *Primulas*, and *Sempervivums*, just to mention three genera often found on rocks, are more easily established than many species that grow in deep loam or ordinary compost. Is not *Anemone sulphurea* itself a case in point? Many actual rock-plants so frequently form a sort of adhesive cushion of humus which can easily be peeled off, and so the whole root comes with it. I have usually found in the Alps that it is far more difficult to get up roots of a plant, like *Gentiana cruciata*, growing in very stony ground, than the great majority of those growing on the rock itself. *Gentiana asclepiadea*

sometimes has tap-roots 4 feet long, and it is practically impossible to remove any but very young plants. But seed can be obtained easily. I well remember being in the Pyrenees with a friend who had engaged a man to help him collect, and at being horrified to find that this man had ruthlessly torn up an armful of the handsome *Adonis pyrenaica*, which had to be thrown away merely because he had not taken the same care that we ourselves had taken in coaxing the plants out of the crevices. *H. Stuart Thompson.*

FERTILISATION OF MELONS AND CUCUMBERS.—

N. H. remarks, at p. 252, that "in France, where, it will probably be agreed, the finest Melons in the world are produced, the custom of fertilising the blossoms is entirely unknown," adding, "I know a gardener in the North of England who, last year, had 200 Melons, which sold for a good price in one of the large markets, and not one of which was artificially fertilised." I may add that, in order to secure a regular and even set of Melons at the same time in any one house, more especially in houses in which ripe Melons are expected to be ready from the end of April to the end of December, it is absolutely necessary to artificially pollinate the flowers when the necessary number to form a crop are open at the same time on a plant. I do not think British gardeners will agree with *N. H.* in saying that the "finest Melons in the world are produced in France." No doubt pollination of the Melon in France is effected, as stated in the *Gardeners' Chronicle* for March 26, p. 208, by the agency of insects or the wind. In this case, the crop of fruit on the individual plants would consist of fruit of different sizes, and are borne on plants growing, perhaps, out-of-doors in the sunny south. It is wrong to suppose that Cucumber flowers need fertilising before the fruit can develop, the contrary being the case. The female flowers are only fertilised with the pollen from the male flower when "seeding" fruits are desired, but not otherwise. As club-end fruit are generally included at a loss with the "crooks" in marketing the fruit, loss is experienced where bees are kept near where Cucumbers are grown entirely for market, because many club-end fruits develop in consequence of the bees finding their way into the houses on sunny days when the ventilators are open. *W.*

CORDYLIN AUSTRALIS SEEDING.—

Mr. McDonald thinks it is not usual for this plant to bear fertile seeds in the British Isles. In the year 1905 *Cordylina australis* flowered in several gardens in Wigtownshire, and in one instance bore fertile seeds. This was at Balgrogan House Gardens, and in the autumn of that year I obtained from the gardener, Mr. Jowett, a large quantity of seeds, which I sowed the following spring. Almost every seed must have germinated, as there were some hundreds of seedlings. However, I only retained about 50 plants, and these were used in the flower beds. *F. Street, Verdely Place Gardens, Sussex.*

—We have a plant of *Cordylina australis* bearing seed. The plant developed a flower-spike in the early spring of 1909. It is growing in a tub, and is used for outdoor bedding in the summer time, being wintered in a cool greenhouse. The flowers have developed seeds, which are still hanging on the plant, and are quite ripe. Two other flower-spikes appeared on the plant this spring, one of which I cut a few days ago and used for house decorating. It is lasting well in water, and certainly looks very pretty in company with a few spikes of *Clivias*. During the time I was employed in the gardens at Nash Court, Faversham, *Cordylines* used to flower there, planted out in the Fernery. *Wilmot H. Yates, Rotherfield Park Gardens, Alton, Hants.*

GLADIOLUS PRIMULINUS.—

The writer of the note (see p. 244) in last week's issue must, I think, be favoured with a warmer climate than we enjoy in this part. Here, on the borders of Kent and Sussex, I find it necessary to start the bulbs under glass in February to obtain flowers in August. When planted in the ordinary manner in the open, with the general collection of *Gladioli* about the first week in April, *G. primulinus* does not flower till quite the end of September, or even till the middle of October, and when taking up the corms the offsets are not fully

developed. I think some disappointment may be occasioned if this requirement of more warmth than the average climate of England affords is not taken into account. Otherwise *G. primulinus* is quite easily grown, and would no doubt increase fast in the open ground in Ireland or the south-west of England, for the offsets, being larger than those of the ordinary *Gladiolus* hybrids, most of them reach flowering size the following year. But unless it becomes more acclimatised—to the extent, at least, of the *Gandavensis* varieties—the species itself will not be likely to be much grown, except in those warmer parts of the country. Though the plant also seeds very freely, as the writer of the note states, in my experience more heat is required both for the germination and growth of the seedlings than for most *Gladioli*, or even for its hybrids with them. The pure-bred seedlings as yet do not show any appreciably greater hardiness than the original plants. The writer's description of the species as "well-bred" is a happy one. It is an undoubted acquisition, because of its colour and size, for crossing with the existing varieties. Though as yet its hybrids are not of any distinctive excellence, this is very often, if not generally, the case with progeny from a new species and the older races. After three or four more generations of intercrossing I think it may be confidently expected to show its true value. *A. J. Bliss, Tunbridge Wells.*

ELEMENTARY SCHOOL GARDENING.—

The most popular lessons in our elementary schools are those relating to Nature study and gardening. Just as on the seashore the merest infant takes delight in digging and delving in the sand, so, given a piece of ground and a few tools, the child takes naturally to gardening. The curiosity which a child displays, though it may only amuse the ordinary adult, indicates to the teacher an earnestness in the acquirement of knowledge which is of the greatest importance. Hence we see now so commonly in class-rooms attempts to satisfy this by lessons on Nature study. Thus myriads of children to-day are instructed in simple things relating to vegetable life, of which their parents and seniors know little or nothing. Small wonder that with the introduction into the elementary school curriculum of gardening, the work of both instruction and learning should have been taken up with enthusiasm. Teachers who wearied of the monotony of the class-room have gladly seized upon the opportunity. In preparing lessons in gardening for their lads, the teachers have themselves acquired some horticultural insight of a practical nature. The boys—for, so far, the girls have had little share in this elevating outdoor pursuit—have eagerly seized the opportunity to cultivate their garden plots. That natural or innate love for gardening already referred to breaks out with fervour the moment school-gardening plots are available. Lads very soon, under their weekly instruction, get to realise that to obtain the greatest amount of vegetable produce from the ground it must be deeply worked, so that the crops have ample root-run and find there plentiful means of subsistence. They find, too, the importance of feeding soil with plant foods in the form of manure, and of retaining in it ample moisture to supply the growing crops. They learn the importance of the proper aeration of the soil. They also learn the properties of seeds, their modes of germination and the conditions under which they start into growth. Such knowledge may appear trifling to the adult gardener, yet it opens up to the juvenile a new phase of work and of life. But the practical critic asks, and rightly, In what direction is all this knowledge to find its application? That question raises before us one of the gravest problems connected with school work. All over the kingdom educational authorities have established school gardens, and literally thousands of boys are being taught to garden, to use tools, to become practical soil workers, yet probably not one in authority has ever asked what is to be the outcome of it all. Will these authorities ever realise what they have done, and the grave responsibility resting on them, because of the stimulus to land working and land hunger, given in our schools? Are they prepared to make further provision for allotments and small holdings, and thus make use of that early training for promoting the prosperity of the nation, the benefit of the worker, and the production of good, wholesome food. *A. D.*

LAW NOTES.

ALLEGED CORRUPT PRACTICES.

THE case under the Prevention of Corruption Act, 1906, brought against a member of the firm of Messrs. Cutbush & Sons, Highgate and Barnet, along with one of the travellers of the firm, was commenced at Marylebone Police Court on February 23 (see *Gardeners' Chronicle*, pp. 138, 176, 223), but was remitted to the Assize Courts. The trial took place before Mr. Justice Grantham, at the Manchester Assizes, on Saturday, the 16th, and resulted in a verdict of "not guilty."

Herbert James Cutbush, in charge of the Highgate branch of Messrs. Cutbush's business, and Richard Holden, a traveller, who has been in the service of the firm for 11 years, were the defendants. The charge was in two counts. The first was that of corruptly making a present of whiskey to Charles Kidd, gardener on the estate of Capt. E. N. Starkie, Huntroyde, Padiham, Lancashire, with a view to Mr. Kidd favouring Messrs. Cutbush in the giving out of orders at his disposal. Under the second count of the charge, the defendants were alleged to have given the present to induce Mr. Kidd to vouch for the delivery of a package of 300 Tulips, which, the prosecution alleged, were not, in fact, delivered. The second charge was the much more serious of the two. Both Mr. Justice Grantham and counsel on either side pointed out to the jury that it was practically a charge of obtaining money by false pretences, the allegation being that the present of whiskey was covered up by a document which purported to be an invoice for Tulips delivered, to the amount of £1 10s., this amount being paid by Capt. Starkie's agent to Messrs. Cutbush, while all the latter did—as the prosecution charged—as a contra was to send Mr. Kidd, the gardener, a case of whiskey costing 18s., and which was presented corruptly, without the knowledge of the employer.

The latter and more serious charge completely broke down on the evidence.

Mr. Langdon, K.C., for the prosecution, which was undertaken by the Secret Commissions and Bribery Prevention League, undertook to prove that an order sent to the Highgate branch of the firm in December, 1908, by the defendant Holden, to send "one case of Cutbush's insecticide" to Mr. Kidd, at Huntroyde, was really a request to the firm to send a case of whiskey to Mr. Kidd as a corrupt present. Mr. Langdon depended mainly for proof of his case on a witness, Morgan, who was a clerk in the service of Messrs. Cutbush, in December, 1908, and was dismissed in February, 1909. The actual order sent by Mr. Holden to the firm—it had been wrongfully taken away by Morgan, on his own admission—was produced, and Morgan swore that it was well known in the firm's office that "Cutbush's insecticide" meant whiskey. Testimony was also called from the estate—that of Mr. Howsin, assistant agent—to show that an invoice for 300 Tulips, dated December 21, 1908, was sent in by Messrs. Cutbush and duly paid. Mr. Howsin said the Tulips were never delivered by rail, and no case of insecticide was sent to the estate by the firm. Neither, so far as he knew, were the 300 Tulips mentioned in this invoice ever planted or grown on the estate. Evidence was given for the prosecution of the despatch of a case of whiskey by an Edinburgh firm to Mr. Kidd at the instance of Messrs. Cutbush, and of its delivery to Mr. Kidd from Padiham station. The station clerk's evidence was that the whiskey was entered as despatched from Edinburgh on December 22. It was delivered to a carter from Huntroyde estate on December 26.

Against this evidence on the more serious charge the defence, for which Mr. McCall, K.C., and other counsel appeared, produced an order from Mr. Kidd, received by Messrs. Cutbush on December 22, 1908, by which he countermanded the order given verbally to Mr. Holden while he was at Huntroyde on December 16 or 17. In this written order he asked that, instead of a case of insecticide, Messrs. Cutbush should send on 300 Tulips of which he was specially in need. The genuineness of this substituted order was admitted by Morgan, the principal witness for the prosecution, and the defendant Cutbush stated in evidence that, owing to a delay in the forwarding of the original order for insecticide by the traveller Holden, he did not receive it at Highgate until the evening of December 21. On the following morning he had the substituted order for

Tulips from Mr. Kidd himself, and he (Mr. Cutbush), of course, only had the order for Tulips executed.

The gardener, Mr. Kidd, in his evidence, stated that he discovered that he was in need of Tulips after Mr. Holden's call, and, accordingly, posted the substituted order for these to be sent instead of insecticide. The defence showed, by the evidence of employees of the firm, that, instead of the Tulips being forwarded by rail, as they usually were, they were taken north by Mr. Holden, as he was going to Lancashire for his Christmas holiday. They were delivered personally by him on December 28. A flat denial was given by Mr. Cutbush and his employees to the statement that "Cutbush's insecticide" meant whiskey. What it did mean, when asked for by customers, was a case of mixed insecticide, of which they had several varieties in stock.

On this evidence, which Mr. Justice Grantham described as quite outclassing that of the prosecution, the more serious count of the indictment was dropped, his Lordship stating, in his summing-up, that he had been startled to find that such a charge as that implied by the allegations about the insecticide order could even be suggested against a firm with the high reputation of Messrs. Cutbush.

On the charge of sending whiskey as a corrupt gift to the gardener, Mr. Kidd, the judge took a different view.

The defendant, Mr. Cutbush, in his evidence, stated that it had been his practice for 25 years to send out presents of whiskey mainly to gardeners. The despatch of a case of whiskey to Mr. Kidd in December, 1908, was frankly admitted, and Mr. Cutbush also admitted that, in accordance with his usual custom, he instructed the whiskey merchants to use "plain labels and plain boxes" with the whiskey, so that neither the place it was sent from nor the nature of the contents of the box should be apparent on the outside. This had always been his custom, and his explanation of it was that it was undesirable that the other people on the estate should know that Mr. Kidd was receiving whiskey. He admitted that the orders his firm received from Huntroyde had considerably increased since Mr. Kidd entered Capt. Starkie's service in 1901, and he stated also that Mr. Kidd was temporarily employed by Messrs. Cutbush before he went as head gardener to Huntroyde. Mr. Cutbush also stated that, on the passing of the Act of 1906, he had enquired in various quarters whether these gifts of whiskey would still be legal, and he was satisfied by his enquiries that he might continue them. He declared that it was only in 1908 that he included Mr. Kidd in the list of gardeners to whom he sent whiskey presents.

His Lordship held that, on his own evidence, Mr. Cutbush had brought himself within the Act. In his charge to the jury on this point he said: "Mr. Cutbush stated that he has been giving these presents for 25 years, and that he has taken advice upon them since the 1906 Act was passed. The effect of the Act on Christmas presents has been much discussed. A Christmas present may be given corruptly and bring the giver within the Act. The very fact that the defence endeavoured to show that Mr. Kidd never received a present of whiskey before 1908 seems to me the strongest proof that this present was given corruptly. For 1908 was the year when the firm had orders from Kidd such as they had never had before. It is evidently the best customers who get these presents, and Kidd this year, for the first time, came among the favoured customers. If this is not corruption, it is uncommonly like it. It is giving presents to people who give big orders—the very thing that the Act was passed to obviate. This is Mr. Cutbush's own evidence. He said it was his established practice. In my judgment, it ought to be stopped. I don't think it ought to be done. Mr. Cutbush said the presents were only given to old friends; but, if that were so, why did not Kidd get them 10 years ago, particularly as he had been in the service of Messrs. Cutbush before he went to Capt. Starkie's? Why didn't he get them when the orders were small from Huntroyde? When the orders increased he got the whiskey, and was put upon the list of those who got it. To my mind, this is as near corruption as it can possibly be, and I do not see myself how the jury can say it is not. It is so difficult to stop things of this kind. You never know where it is to end when it once creeps in. I do not say that a Christmas present may not be given quite legitimately. The Act, however, was

meant to stop tradespeople giving presents to the servants of people who are their customers. In consideration of orders given, and on Mr. Cutbush's evidence, I am bound to say that, to me, he has brought himself within the Act. Of course, he may have acted perfectly honestly. He may have been told that he could do it. But if his object was to obtain the favour of a person who was giving him orders, and might give him orders in the future, it is different."

His Lordship said there was no evidence against the defendant Holden.

After a very short absence—less than five minutes—the jury returned a verdict of not guilty on both counts in the case of both defendants.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 19.—The usual fortnightly meeting was held in the Society's Hall, Westminster, on Tuesday last. The meeting was again an important one, the building being filled with exhibits, even in the annexes. Orchids, as usual, were numerous, and many novelties were shown, no fewer than seven Awards of Merit being conferred by the ORCHID COMMITTEE.

The exhibits presented before the FLORAL COMMITTEE were of more than usual importance. Two Gold Medals were awarded, one for a magnificent group of Hippeastrums shown by Lieut.-Col. HOLFORD, the other for an imposing exhibit of Auriculas staged by Mr. JAMES DOUGLAS. In addition to these there were bright displays of Carnations, Roses, Cinerarias, Caladiums, forced shrubs and hardy plants. This Committee granted six Awards of Merit, three to Hippeastrums, two to Auriculas, and one to a Primula.

The NARCISSUS COMMITTEE had the largest meeting of the season, and conferred a considerable number of medals, also one Award of Merit.

The exhibits before the FRUIT AND VEGETABLE COMMITTEE were not numerous: an Award of Merit was given to a variety of Apple.

At the 3 o'clock meeting in the lecture room, Mr. R. Lloyd Praeger gave an address on "The Wild Flowers of the West of Ireland."

Floral Committee.

Present: Henry B. May, Esq. (in the Chair), and Messrs. C. T. Drury, Jno. Green, T. W. Turner, G. Reuthe, Jas. Walker, W. Cranfield, W. J. Bean, Geo. Gordon, J. F. McLeod, Alex. Kingsmill, J. Douglas, W. Howe, Jno. Jennings, Chas. Blick, J. W. Barr, Chas. Dixon, E. T. Cook, H. J. Jones, Herbert J. Cutbush, Chas. E. Shea, J. T. Bennett-Poë, W. P. Thomson, N. F. Barnes, R. C. Notcutt, Jas. Hudson, W. G. Baker, E. A. Bowles, and E. H. Jenkins.

The chief feature of the show was a group of Hippeastrums (*Amaryllis*) exhibited by Lt.-Col. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. A. Chapman). The plants numbered 140, and they had 1,000 blooms, several specimens having two strong inflorescences. There were plenty with four fine flowers, and so good was the general culture of the plants, the grower was awarded a Cultural Commendation. The more remarkable kinds were: Avoca, white; Amazon, scarlet and white; Ruskin, crimson; Avalanche, white; Merander, reddish rose; Elsie, white; Harvest Moon, white, with faint tint; The Czar, crimson; and Prosperine, a very big whitish variety striped with red. (Gold Medal.)

Mrs. BISCHOFFSHEIM, Stanmore, showed a large group of standard plants of Pelargonium Clorinda. The plants showed excellent cultivation and a prodigious quantity of flowers and flower-buds. (Silver Banksian Medal.)

Messrs. R. & G. CUTHBERT, Southgate, Middlesex, made a rich display with forced shrubs of Azaleas, including the varieties Brilliant, Consul and Ceresole. The Lilacs included the varieties Souvenir de Späth and Marie Lefraye. (Silver-gilt Flora Medal.)

Mr. L. R. RUSSELL, Richmond Nurseries, Surrey, had a somewhat similar exhibit to the last-named, including numerous plants of Azalea mollis, of which he made good use in the group. (Silver Banksian Medal.)

MESSRS. SUTTON & SONS, Reading, filled a large table with Cinerarias of the Cactus-flowered

type. These have dwarf, spreading inflorescences, with the florets rolled back like the star Primula. The plants were well grown and they exhibited a great variety of colours. In the centre of the group were some with broad florets of shades of rose and red. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, staged a miscellaneous group of flowering plants and Ferns. (Silver Banksian Medal.)

Messrs. CUTBUSH & SON, Highgate, showed Carnations of fine quality. The firm also displayed a group of hardy plants set off by a row of flowering shrubs with a wealth of blossoms. Notable subjects in this group were *Gentiana acaulis*, *Ranunculus amplexicaulis*, *Stylophorum diphyllum*, *Primula rosea*, *Chrysogonum virginicum*, *Ourisia coccinea*, and of flowering shrubs *Pyrus Scheideckei*, *Tricuspidaria dependens*, *Rhododendron Smithii aurea*, and *Magnolia atropurpurea*. (Silver Flora Medal.)

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, showed numerous greenhouse flowering plants in batches. One of the best novelties was a pure-white form of *Primula obconica* labelled *grandiflora alba*; the plants were very floriferous. A specimen of *Aristolochia gigas* var. *Sturtevantii* (see fig. 109 in last week's issue) was shown in flower. (Silver Flora Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, showed a magnificent collection of Carnations in all the notable kinds; also batches of *Acacias*, *Azalea elegantissima odorata*, Maples, with coloured foliage, and Roses, amongst which the beautiful Lyon Rose was conspicuous. Some of the dwarf Polyantha varieties were new, the one labelled Orleans Rose being of promise. Amongst the Ramblers none was finer than Lady Gay, with its large, hanging trusses of flowers. (Silver Flora Medal.)

Messrs. JOHN PEED & SON, West Norwood, showed *Caladiums* in variety. (Silver Banksian Medal.)

Messrs. H. J. JONES, LTD., Hither Green, Lewisham, displayed trusses of Zonal Pelargoniums in about 36 varieties. They made an attractive exhibit. The best in their respective colours were A. Lovett (scarlet), Mrs. W. Pascoe (cerise), J. Andrews (salmon), Ethel Parsons (pink), Claremont (white), R. C. Pulling (cherry red), and Mrs. Toogood (lilac pink).

Messrs. H. CANNELL & SONS, Swanley, Kent, showed bright bunches of Zonal Pelargoniums in about 36 varieties.

Messrs. GILBERT & SON, Dyke, Bourne, Lincolnshire, showed varieties of *Anemone*.

ROSES.

Messrs. GEO. MOUNT & SONS, The Nurseries, Canterbury, showed a charming group of Roses. (Silver Banksian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, Hertfordshire, exhibited, as a corner group, a display of pot Roses. Tall Ramblers included those of "blue" shades, such as *Veilchenblau* and *Bordeaux*. *Tausendschon* was very fine: the flowers of this kind are extra large for a Rambler. Of the Hybrid Tea varieties, *Albatross*, *Margaret*, *Isabelle*, *Althea* and *Cynthia* are new.

Messrs. FRANK CANT & CO., Braiswick Rose Garden, Colchester, exhibited a group of Roses. The back was composed of Ramblers, of which *Ida Klemm* and *Trier* were the most attractive. In the front were boxes, one being filled with the blush-tinted variety named *Queen of Spain*. *Lady Roberts* is a Rose of charming form, the petals rolling back and displaying a deep copper centre. (Silver Banksian Medal.)

Messrs. B. CANT & SONS, The Old Rose Gardens, Colchester, made an interesting exhibit with Roses as cut blooms. Very showy was the semi-double Rose du Barri, a Hybrid Tea variety, good for bedding, of the shade of pink known under that name. A number of show boxes were filled with well-developed blooms. *Lady Reay*, H.T., is a pretty flower in the bud stage, but the petals are not numerous enough for it to be classed as a good variety. The colour is a tender blush. (Silver Flora Medal.)

Mr. GEO. PRINCE, Longworth, staged some well-grown Roses, for which a Silver Banksian Medal was awarded.

Mr. R. F. FELTON, Florist, Hanover Square, London, had some magnificent *Gerberas* arranged about a big bank of Lyon Rose. Both the Roses and the *Gerberas* were of remarkable quality and they excited much admiration. (Silver Flora Medal.)

Mr. H. BURNETT, Forest Road, Guernsey, again made a fine exhibit with Carnations, the blooms being large, richly coloured and developed on long stalks. Prominence was given to the variety *Marmion*, a perpetual-flowering variety with growth similar to *Souvenir de la Malmaison*. (Silver Banksian Medal.)

Winter-flowering Carnations in popular varieties came from Mr. W. H. PAGE, Tangley, Hampton. The display was a good one. (Silver Flora Medal.)

HARDY PLANTS.

Mr. JAMES DOUGLAS, Great Bookham, Surrey, showed a superb collection of Auriculas, with a back row of finely-flowered Polyanthus. There were 300 plants of Auriculas of show and Alpine varieties, every plant a specimen and magnificently bloomed. A selection of the best includes *Alpine*: Blue Bell, Mrs. Markham, Teviot Dale, Firefly, Ziska, Dean Hole, Dazzle, Admiration; *grey edge*: Mrs. Henwood, Abbé Liszt, Shirley Hibberd; *self*: Victor, Warley; *white*: George Rudd. (Gold Medal.)

Messrs. STORRIE & STORRIE, Glencarse, Perthshire, made a fine display with Polyanthus, including border varieties, which in some instances have peculiar tints. The so-called Giant Polyanthus in yellow, white, laced, crimson, hose-in-hose, sweet-scented, yellow-flowered border, and several others, created great interest. (Silver Flora Medal.)

Mr. T. KITLEY, Oldfield Nursery, Bath, showed a pan-full of *Saxifraga bathoniensis* var. *decipiens grandiflora*, the flowers of a carmine tint, and surmounting stalks 5 inches high, a good Alpine plant for the garden.

Mr. REUTHE, Keston, Kent, showed a miscellaneous lot of hardy plants, Alpine plants and Himalayan *Rhododendrons* as trusses of flowers. The exhibit included many novelties or rarities in *Primulas*, *Anemones*, *Aubrietias*, &c.

Mr. A. R. UPTON, Guildford Hardy Plant Nursery, exhibited many hardy plants, such as *Ericas*, *Tulipas* in variety, *Iris pumila*, and *Megasia afghanica*.

From Messrs. BAKER, Nurserymen, Wolverhampton, there came 28 varieties of Pansies in distinct colours—a new *Aubrietia*, J. S. Baker, of a rich blue-purple tint, and in size above the normal; *Primula cashmeriana*, *Incarvillea grandiflora*, *Viola pedata* and other species.

Messrs. DOBBIE & CO., Edinburgh and Rothesay, had a capital display of Pansies, of sizes we are not accustomed to observe "down south." Their Polyanthus varieties were also notable, the colours being clear and distinct.

Messrs. T. S. WARE, LTD., Feltham, exhibited a rockery, on which suitable plants found a place. We remarked the pretty *Aubrietia* Dr. Mules, *Anemone apennina alba*, *Primula rosea grandiflora*, *Anemone pulsatilla Halleri*, *Houstonia cœrulea*, *Androsace Chumbyi*, and many other choice species of Alpines. (Silver Banksian Medal.)

Messrs. ROBERT SYDENHAM, LTD., Tenby Street, Birmingham, showed numerous plants, many of bulbous species, grown in vases containing fibre. The plants were flowering finely, and appeared in perfect health. Another pretty feature were the numerous vases of *Anemones*.

Messrs. R. WALLACE & CO., Colchester, made a rock-garden exhibit planted with, amongst other things, *Viola gracilis*, *Cytisus præcox*, a remarkably fine batch of *Primula viscosa* Mrs. J. H. Wilson (the feature of the exhibit), the double-flowered *Caltha palustris*, *Aubrietia Perkinsii* with large blooms, *Arnebia echioides*, *Tulipa Fosteriana*, *T. Clusiana*, and *T. pulchella*. (Silver Banksian Medal.)

Messrs. GEO. JACKMAN & SON, Woking Nursery, Surrey, staged Alpine plants with vases of flowering shrubs at the back. The new dwarf Irises, raised from *I. primula* and *I. germanica*, were pretty; two of the best varieties were *Cyanea* (violet-blue) and *Florida* (yellow). *Morisia hypogæa* is a dwarf-growing, yellow-flowered Crucifer, not at all easy to cultivate. *Trilliums* in variety, *Antirrhinum asarina*, *Adiantum pedatum* (the hardy Maidenhair Fern), *Phlox Laphami*, and *Androsace coronopifolia* were also noticed in the group.

Messrs. BARR & SONS, Covent Garden, London, staged several boxes of Alpines in conjunction with their display of Narcissi and Tulips. *Anchusa myosotiflora* was shown finely, and there were also several hybrid *Gerberas*.

Other exhibitors of hardy plants were Mr.

CLARENCE ELLIOTT, Six Mills Nursery, Stevenage, who had some fine plants of *Morisia hypogæa*; the Misses HOPKINS, Mere Gardens, Shepperton, whose Primroses were a feature, and Messrs. G. & A. CLARK, LTD., Dover. Several varieties of Pyrethrum were prominent in Messrs. CLARK's group, notably, the fine double-white *La Belle Blonde* and John Malcolm (pink); *Viola Bridal Morn* attracted attention, the colour is lavender; there were also Polyanthus, the double-flowered *Caltha*, and varieties of *Narcissi*.

W. A. WATTS, Esq., Bronwyllfa, St. Asaph, Wales, exhibited a number of unnamed Polyanthus and Primrose seedlings. The blue-flowered varieties of the latter were pleasing.

Mrs. LLOYD EDWARDS, Bryn Oerog, near Llangollen, showed hybrids of *Saxifraga* and *Aubrietia*. *Aubrietia* Lloyd Edwards and *Saxifraga rosea superba* were the two best of these novelties.

A selection of Camellias from the open and a number of Narcissi of well-known varieties were displayed by Lady TRESS BARRY, St. Leonard's Hill, Windsor (gr. Mr. Robert Brown). (Silver Banksian Medal.)

Messrs. CARTER PAGE & CO., London Wall, again showed bunches of *Violas* and Pansies, together with a few annuals, *Nemophila insignis* being shown as a basket subject. *Dimorphotheca aurantica* was very pretty, also *Linaria maroccana*.

BOTANICAL CERTIFICATE.

Primula Maximowiczii.—This new Chinese species, which was figured in *Gardeners' Chronicle*, April 2, p. 221, was exhibited before the Floral Committee, and this body granted a similar Award to that made by the Scientific Committee on March 22.

AWARDS OF MERIT.

Auricula "Roxburgh."—This is a very fine Alpine *Auricula*, purple, with yellow centre.

Auricula Victor.—A self-coloured Show variety, purple, with white centre.

Auricula Warley.—This Show *Auricula* exhibits a new shade of colour, which may be described as pale mauve or grey-pink, with white paste and yellow centre. Each bloom is $\frac{3}{4}$ inch across. Shown by Mr. J. DOUGLAS.

Hippeastrum Calypso.—This is an extra large flower, of good form and thick substance. It is white, with bright, rose-coloured nerves.

Hippeastrum Cardinal Wolsey.—The shade of purplish or violet-red in this variety is uncommon. In the centre there are a few white markings, and the size and form of the flower are excellent.

Hippeastrum Gereant.—This is a self-coloured flower, of brilliant rosy-scarlet, a choice variety, of large size and good form. These *Hippeastrums* were shown by Lieut.-Col. HOLFORD.

Primula viscosa.—An Award of Merit was recommended for a very good garden *Primula* labelled *P. ciliata*. It was apparently a variety of *P. viscosa*. The habit of the plant is after that of *P. auricula*, but larger in growth than *P. viscosa*. The flowers are also larger, and they are produced in great abundance. In colour they are rich purple, with yellow centre. Shown by W. CRANFIELD, Esq., Enfield.

Narcissus Committee.

Present: H. B. May, Esq. (Chairman), and Messrs. J. T. Bennett-Poë, H. A. Denison, W. W. Fowler, A. M. Wilson, G. Reuthe, J. W. Leak, F. H. Chapman, C. Bourne, Chas. T. Digby, J. D. W. Williams, Charles Dawson, E. M. Crossfield, H. Backhouse, W. Poupart, W. F. M. Copeland, J. D. Pearson, A. R. Goodwin, J. Jacob, W. T. Ware, and Chas. H. Curtis.

No fewer than 10 collections were staged, three of these coming from Ireland. In each case the flowers were of high merit and admirably displayed.

The collection shown by Miss F. W. CURREY, Lismore, Ireland, was noteworthy. It embraced an exquisitely-formed flower of the Engleheartif section in Duke of Leinster. Others of note were Great Warley, the very beautiful Lady of the Snows (an elegant and trim-looking White Ajax), Warrior, and Rosetta, a semi-double Leedsii variety, interesting for this reason, and, so far as we remember, it is the first occasion on which a

double-flowered form of the Leedsii set has been presented in such good condition. (Silver-gilt Flora Medal.)

Mr. F. LILLEY, Guernsey, had a rather large assortment of well-known commercial kinds of Narcissi, and not a few of the choicer sorts, in a well-arranged group.

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, showed a particularly good collection. Amongst the finer flowers we selected for notice Much the Miller, a new bicolor of exceptional merit; King Cup, a very handsome incomparabilis; Finespun, a rich yellow, and so named, we imagine, by reason of its refined beauty; Mrs. William Miles, a very handsome incomparabilis sort, whose big, orange, frilled crown excited admiration; Goldseeker, Admiral Makaroff, King Alfred, and Cornellier, all superbly-coloured varieties of the yellow Ajax section; with Evangeline, Amazon, and White Claude of the Leedsii type. (Silver-gilt Flora Medal.)

Mr. HERBERT CHAPMAN, Rye, Sussex, who is paying considerable attention to the raising of new varieties, had many excellent novelties as yet unnamed. Of the name sorts, Lustre is a beautiful triandrus hybrid of singular beauty and refinement; Harold Finn, a lovely Poet's Daffodil. Other sorts included King Alfred, very fine; Scarlet Eye; Little Tich, a small yet shapely and round-petalled variety of the Burbidgei set; Mistral, another triandrus hybrid; together with such fine Poeticus varieties as Horace and Ibis. (Silver Flora Medal.)

Rev. W. W. FOWLER, Reading, had a small collection, in which Lady Margaret Boscawen, Albatross, Apricot, Glory of Leiden, Mrs. Walter T. Ware, Catherine Spurrell, and Gloria Mundi were seen to advantage. (Silver Flora Medal.)

Mr. ALEX. M. WILSON, Shovell, Bridgwater, Somerset, again had a remarkable display, of which the following were a few of the leading varieties:—Buttercup, of richest yellow colour; Cræsus, incomparabilis, with primrose perianth and widely-expanded orange crown; Hypatia, a beautiful Engleheartii sort; Moscar, of the Leedsii type, with exceptionally broad, substantial petals; Miss Swanwick, a white Ajax flower of the largest size, showing a pale green base; Bonfire, a glorified Blood Orange; Magie (Engleheartii), the widely-extending eye or crown of rich gold has a well-defined orange-scarlet rim, which renders it as remarkable as it is distinct; and Lavender (Leedsii), having pure white perianth and delicately-tinted crown, lightly margined with pink. (Silver-gilt Banksian Medal.)

Rev. G. P. HAYDON, Canterbury, whose exhibit of flowers secured the "Barr Silver Cup," had many beautiful and handsome varieties, the flowers being in the best possible condition. Some of the varieties were raised by Mr. HAYDON, as, for example, Pearl of Kent, a lovely, drooping Ajax, of the white-flowered section. White Queen, Deal, C. W. Nunn (drooping bicolor Ajax), Broad Oak (rich yellow Ajax), Cranbourne (golden-yellow self), Minister (with sulphury-primrose trumpet and white perianth), Perker (an exquisitely-beautiful white Ajax variety), China Ware (of the same set, a most chaste variety), and Dropmore (a somewhat appropriate name for one of the most distinctly drooping White Ajax varieties).

Messrs. R. H. BATH, LTD., Wisbech, had an extensive assortment, in which Harmony, King's Norton, Spinnacker, Brilliancy (a fine incomparabilis), and White Queen were noticed. (Silver Banksian Medal.)

Messrs. HOGG & ROBERTSON, Dublin, also staged an admirable group, for which a Silver Banksian Medal was awarded.

A Silver Flora Medal was awarded to Mr. J. COOPER, Lissadell, Sligo, for a representative collection of the best commercial varieties.

The collection of seedling novelties from the Rev. G. H. ENGLEHEART, Dinton, Salisbury, was, without doubt, the most unique lot in the show. They were unnamed, so that we cannot particularise. (Silver-gilt Banksian Medal.)

Messrs. BARR & SONS, Covent Garden, showed seedlings and named varieties. The finer were Furnace, Seraphim (a handsome new bicolor), Sirdar, Lord Kitchener, Peter Barr, Blazing Star, Loveliness (an exquisitely-beautiful white Ajax), Eileen Mitchell, Fireflame, Firebrand, the very beautiful Poeticus Lycidas, Mrs. G. H. Barr, and Queen of the North. (Silver-gilt Flora Medal.)

AWARD OF MERIT.

Narcissus Poeticus Mathew Arnold.—The finest Poeticus variety we have yet seen, and, from the exhibition standpoint, a great advance upon existing varieties. The flower is perfectly circular, of moderate size, the segments of the perianth overlaying each other in the most symmetrical manner. The eye or crown is one of brilliant and intense colouring. From Messrs. CARTWRIGHT & GOODWIN, Kidderminster.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshay, W. Boxall, R. G. Thwaites, Stuart Low, F. Sander, A. A. McBean, W. P. Bound, J. Charlesworth, J. Cypher, H. G. Alexander, W. H. Hatcher, W. H. White, H. A. Tracey, H. Ballantine, Gurney Wilson, J. Wilson Potter, W. Bolton, H. Little, W. Cobb, F. J. Hanbury, A. Dye, and H. Graire, of Amiens.

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, were awarded the Silver-gilt Flora Medal for an excellent and well-arranged group of finely-grown Orchids, chiefly of the popular showy kinds, but with some rare species, the best of which was *Cirrhopetalum picturatum* Cliftonii, a remarkably strong grower, with three stout spikes, surmounted by large umbels of greenish and purple flowers, far superior to the type. The back of the group was of *Dendrobiums* and *Oncidium* Marshallianum, the white D. Jamesianum and yellow-tinted D. cariniferum being exceptionally good. The exhibit also included *Odontiodas*, *Epidendrum* Endresio-Wallisii, E. variegatum, a plant of the singular *Dendrobium macrophyllum*, a dark form of *Cymbidium Lowianum*, good *Odontoglossums*, including O. Humeum, O. Rolfeæ, and other hybrids, a well-flowered *Masdevallia Pourbaixii*, fine *Cattleya Schröderæ*, and C. Mendelii, and an interesting novelty, C. Stuartii (Mendelii alba × *Mossii* Reineckiana), with a pure white flower, marked with carmine-rose on the lip, as in some forms of C. *Mossii* Reineckiana.

Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed *Cymbidium Lowianum* Pitt's variety in fine form, with a spike of 13 very large flowers, the colouring on the broad labellum being of an intense, deep, bronzy-claret hue.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed two plants of his handsome *Brasso-Lælio-Cattleya* Fowleri, with finely-formed flowers of a peculiar shade of coppery-salmon colour on bright yellow ground, the disc of the lip being orange. A very attractive flower. Also his new *Odontoglossum Arnoldianum*. (See Awards.)

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a most interesting selection of hybrid *Odontoglossums*, all except the elegant and rare O. *Wendlandianum* Crawshayanum, raised at Rosefield, the prettiest, O. *regale rosefieldense*, securing an Award of Merit. The others noted were O. *Anneris* (cristatum × *Crawshayanum*), the large and showy O. *Crawshayanum* (Hallii × *Harryanum*); O. *nitens* (*Hunnewellianum* × *ardentissimum*), a neat, darkly-blotched flower; and O. *Aida* (*Coradinei* × *Harryanum*).

E. ROGERSON, West Didsbury, Manchester (gr. Mr. Price), sent *Odontoglossum eximium* Rogerstonii (crispum × *ardentissimum*), like a good blotched O. *crispum*.

WALTER COBB, Esq., Normanhurst, Rusper (gr. Mr. C. J. Salter), showed the handsome *Odontoglossum Lawrenceanum* Cobb's variety (see Awards); *Odontioda Charlesworthii* superba, with uniformly brilliant-scarlet flowers; *Cypripedium Vipanii*; and cut spikes of many good *Odontoglossums* and *Odontiodas*.

Mons. HENRI GRAIRE, St. Fuscien, Amiens, sent *Odontoglossum Rossianæ* (Rossii × *Adrianæ*) and its variety *rubens*, and O. *crispum* St. Fuscien, for both of which see Awards. Also *Odontioda Euterpe* (C. *Noezliana* × O. *Uro-Skinneri*), with smallish, deep-red flowers, originally raised by Messrs. Charlesworth, and *Odontoglossum Thompsonianum* St. Fuscien, with blackish-chocolate flowers, having a very slight lilac margin.

Messrs. CHARLESWORTH & CO., Haywards Heath, were awarded a Silver Flora Medal for an

effective group, in which were many showy hybrids and some specially interesting species, including the fine, pure white *Trichopilia Backhouseana*; *Warszewiczella discolor* and W. *marginata*; *Cœlogyne chloroptera*; *Dendrobium Bronckhartii*; some fine *Cattleya Mendelii*, including a pretty pearly-white new form, in the way of Quorn House variety. Among the hybrid *Odontoglossums* were some finely-coloured O. *ardentissimum*, and the pure white O. *ardentissimum* xanthotes, together with some unnamed seedlings. Others noted were *Lælio-Cattleya* *Dominiana* magnifica, very dark in colour, several yellow L.-C. Doris, and good *Phaius* Norman.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an effective group, at the end of which was a well-flowered specimen of the wax-like, white *Chysis bracteescens*, and beside it a selection of blotched and hybrid *Odontoglossums*, including dark-coloured O. *Vuykstekeæ*, O. *Fascinator*, O. *Rolfeæ*, varieties of O. *eximium*, the pretty little O. *crocidipterum*, *Bletia catenulata*, *Saccolabium ampullaceum*, *Cattleya Lawrenceana*, some fine C. *Schröderæ*, *Brasso-Lælia* Mrs. M. Gratrix, and several *Brasso-Cattleyas* and *Lælio-Cattleyas*, three good blotched *Odontoglossum crispum*, and the new white *Sobralia Cliftoniæ*. (See Awards.)

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent *Odontoglossum eximium* Clarksonii, a very large and richly-blotched flower; O. *eximium* Lord Carnarvon, a lighter form, with a fine branched spike of 22 flowers; and O. *crispum* Newtonii, a good, large flower, with cinnamon-brown blotches.

Messrs. J. and A. A. McBEAN, Cooksbridge, staged a group of good *Odontoglossums*, including a home-raised seedling O. *Wilckeanum*; a fine O. *crispum* with effective reddish spotting; some good O. *Pescatorei*, O. *Rolfeæ* and other *Odontoglossums*; *Cattleya Schröderæ* Prince of Orange, with large lilac-tinted flowers with deep orange throat to the lip; and the very handsome *Miltonia Phalænopsis* McBean's variety. (See Awards.)

Mons. MERTENS, Ghent, showed a selection of hybrid *Odontoglossums*, *Miltonia Bleuana*, &c.

Mr. E. V. Low, Orchid Nursery, Vale Bridge, Haywards Heath, sent *Cattleya Trianae* Empress of India, a distinct white flower with a freckling of purple on the lip, which has a yellow disc; also another fine C. *Schröderæ* of a peach blossom tint.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, staged an effective group in which the varieties of *Cymbidium Woodhamsianum* were well displayed. Also *Masdevallia Chesteronii*, a grand specimen of *Odontoglossum nævium*, *Lycaste Skinneri*, L. *gigantea*, *Bulbophyllum appendiculatum* and the handsome *Cypripedium Helen* II. var. *Armstrongiæ*, with large cream-white flowers prettily marked with light purple.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent *Cypripedium* The King (*bellatulum* × *selligerum* majus), a large cream-white flower spotted with purple and having feathered purple lines on the dorsal sepal.

A. HARRISON, Esq., Lyndhurst, Watford, sent *Cattleya Schröderæ*, *Dendrobium nobile* and two hybrid *Odontoglossums*.

AWARDS.

AWARDS OF MERIT.

Odontoglossum regale rosefieldense (Lawrenceanum × *ardentissimum*), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables). A pretty and graceful hybrid, with the neat habit of O. *ardentissimum*, but with a yellowish ground colour heavily blotched with dark red, the whole flower having a transparent appearance when placed in a good light. The plant was finely grown and had a spike of many flowers.

Sobralia Cliftoniæ, from Messrs. SANDER & SONS, St. Albans. A desirable plant of comparatively dwarf habit, and very floriferous, for the flowers succeed each other for a long time. It was imported from Ecuador, and differs from S. *macrantha* alba in having a differently-shaped lip and a thicker substance to the whole flower, which is white with a slight purple tinge in the tube of the lip.

Odontoglossum Arnoldianum (parentage unknown), from J. GURNEY FOWLER, Esq.,

Glebelands, South Woodford (gr. Mr. J. Davis). A singular and hands me hybrid, with uniformly broad sepals and petals of a deep claret tint, with a few white markings; the peculiar broad shield-shaped lip being white with purple markings.

Odontoglossum Lawrenceanum Cobb's variety (*triumphans* × *Rolfes*), from WALTER COBB, Esq. (gr. Mr. C. J. Salter). The best form of this hybrid which has yet appeared, all the segments being equally broad and the colour fine. Ground colour yellow, heavily blotched with chocolate-purple; lip white, with yellow crest and purple markings at the base.

Mitonia Phalanopsis McBean's variety, from Messrs. J. & A. A. McBEAN, Cooksbridge. A variation in which the deep rose colouring on the lip, which occupies the greater part of its surface, is displayed in an entire mask, as in *M. vexillaria* Memoria G. D. Owen. The sepals and petals are white with a basal rose line and some rose spots on the petals.

Odontoglossum Rossiana rubens (Rossii × *Adrianæ*), from Mons. HENRI GRAIRE, St. Fuscien, Amiens. A pretty hybrid with six flowers on the spike, equal in size to those of *O. Adrianæ*. Sepals and petals lilac with white base, the sepals evenly spotted with dark purple and the petals having some dark spots on the inner halves; lip rose with yellow crest.

Odontoglossum crispum St Fuscien, from Mons. HENRI GRAIRE.—A very beautiful form, nearest to *O. crispum* Cooksoniae. Flowers white, beautifully blotched with purple.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq., V.M.H. (in the Chair), and Messrs. A. H. Pearson, J. Cheal, W. Bates, G. Woodward, A. Dean, E. Beckett, J. Willard, W. J. Jeffries, A. R. Allan, H. Markham, H. Parr, J. Vert, G. Hobday, W. H. Divers, H. Hooper, J. Jaques, G. Wythes, C. Foster, O. Thomas, S. Davis, J. Harrison, and G. Reynolds.

Samples of Dawes's Challenge and Red Emperor Rhubarbs, the latter variety much resembling the old early Linnaeus, were shown from Wisley Gardens. Dawes's Challenge had much the better colour, but were 12 inches long. Red Emperor was not so well coloured; the stalks were 18 inches long.

Mr. T. E. DAWES, King's Lynn, also staged roots of Dawes's Challenge Rhubarb, with stalks 2 feet in length.

Mrs. BISCHOFFSHEIM, Stanmore, showed four dishes of frame-grown Potatoes May Queen and Sharpe's Victor, set up amidst Parsley in pots and several good samples of Early Paris Cabbage Lettuce. (Cultural Commendation.)

Sir MARK COLLETT, Hemsing, Sevenoaks (gr. Mr. Nicholls), set up a collection of 24 dishes of Apples and three of Pears. The best Apples were Lane's Prince Albert, Hambling's Seedling, Bismarck, Lord Derby, Annie Elisabeth, and Newton Wonder; the remaining fruits were rather small, and much shrivelled, having evidently been stored too dry.

MESSRS. JAS. VEITCH & SONS, Chelsea, had a very interesting collection of vegetables, the centre comprising no fewer than 18 varieties of Radishes, including Purple Long, French Breakfast, Scarlet Olive, and some that were yellow-tinted. There were numerous Cabbage Lettuces, the best being Golden Queen, Passion, Blonde, Tom Thumb, Reine de May, and All the Year Round. Very fine were the leaves of Veitch's summer Spinach. There were also capital specimens of Wythes's Early Gem French Beans, good Sensation Cucumbers, White d'Auger's Broccoli, long white forcing Turnips, small Paris Market Carrots, and numerous examples of Early Incomparable, Early Parisian, and Early Duke of York Cabbages. (Silver Knightian Medal.)

AWARD OF MERIT.

Apple Wagener.—The fruits are of medium size, roundish, and the tree a very heavy cropper. The fruits were exhibited at the previous meeting as a late cooking variety. It was agreed Mr. S. T. Wright should test them, and his report was highly favourable. Shown by Mr. W. CRUMP, Madresfield Court Gardens.

NURSERYMEN, MARKET-GARDENERS' & GENERAL HAILSTORM INSURANCE CORPORATION, LTD.

APRIL 8.—The 15th annual general meeting of this company was held at 41 and 42, King Street, Covent Garden, on this date. The accounts showed an increase in the year both as regards premium income and interest. The past year has been peculiarly free from hailstorms, but two further claims have been settled since the accounts were closed. During the 15 years the premium income has increased from £681 1s. 9d. to £2,476 13s. 10d., which shows that the company is meeting a distinct need and becoming better known. A dividend of 7½ per cent. and bonus of 2½ per cent., making £1,000 in all, was declared, and £1,500 added to the reserve fund, making the reserve £16,500. The invested funds at the end of the year amounted to £26,887 6s. 7d. The company is building up the reserve fund against heavy claims which might come in at any time. The area of glass now insured amounts to more than 37,700,000 square feet.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

APRIL 11.—The monthly meeting was held at the Royal Horticultural Hall on this date. Mr. Charles H. Curtis presided. The minutes of the last meeting were read and confirmed; the number of new members elected during the last three months was 32; two members were transferred from the lower to the higher scale; a cheque for £13 3s. 5d. was drawn for a lapsed member; the usual quarterly payments were made to members over 70. The amount of sick pay for the past month has amounted to £35 9s.

CORNWALL DAFFODIL AND SPRING FLOWER.

APRIL 12.—The 14th annual show of this society was held in the Market Hall, Truro, on this date. Under the management of the Hon. John Boscawen, who has been hon. secretary since the inception of the society 15 years ago, the arrangements were well carried out. In the afternoon the attendance was very large. The entries exceeded in number those of previous years, and the exhibition was undoubtedly the best ever held by the society. The Daffodils were exceptionally good, some choice seedlings being exhibited. The premier class was for a collection of 30 varieties of Daffodils in commerce or not in commerce. The 1st prize in this class was awarded to Mr. J. C. WILLIAMS, who had a wonderful stand of seedlings raised by himself. Unfortunately, they were not named but only numbered, which somewhat detracted from the interest of the group. Among them was a large, golden trumpet Daffodil, greater in size than King Alfred; another with a large, white, drooping trumpet; also a very large example of the Medio-coronati type, with a pale yellow perianth and orange cup, and five superb Parvi-coronati blooms with brilliant, spreading, orange-scarlet cups. Three of these, No. 244, No. 288 and No. 11F, were given Awards of Merit. The 2nd prize stand of Mr. P. D. WILLIAMS was but little inferior to the premier one, and contained many excellent flowers, one golden-trumpet Daffodil named Sun-flower being exceptionally beautiful. In the classes for single blooms in which the price of the bulb was limited to 10s., the 1st prize for Magni-coronati was won by the variety King Alfred, the 2nd prize being awarded for a bloom of Mme. de Graaff. In Medio-coronati blooms an exceptionally choice example of White Lady won the 1st prize; 2nd, Ariadne; 3rd, Lucifer. In the Parvi-coronati section flowers of Beacon won the 1st. Wheatear the 2nd, and Bullfinch the 3rd prizes. The 1st prize for Poeticus varieties was won by Horace, 2nd prize by Cassandra and 3rd prize by Poet Laureate. In the classes where the price of the bulbs was not limited, the 1st prize for Magni-coronati was awarded for the variety Lord Roberts, 2nd prize for Diogenes and 3rd prize for Lord Roberts. In the Medio-coronati class Homespun received the 1st prize, Pilgrim being placed 2nd. The best Parvi-coronati was Lavender, a pretty, small, white flower, having a flat white cup edged with faint orange;

2nd, Horace; 3rd, Incognita. For the finest bloom of an English-raised Magni-coronati variety Mr. CROSSFIELD won the 1st prize with a superb white trumpet variety named Gyrfacon. This flower was undoubtedly the finest in the show; the 2nd prize was won by white trumpet Al. The finest bloom of an English-raised Medio-coronati Narcissus was a pure white, unnamed variety; 2nd, a bright yellow, also unnamed, seedling. An unnamed variety, with cream-white perianth and flat yellow cup edged with broad orange-scarlet border, shown under No. 143, won the 1st prize in the class for an English-raised Parvi-coronati variety. In the class for a group of Daffodil seedlings which have not been in commerce four years, the 1st prize was won by Mr. CROSSFIELD with a fine stand containing Bedouine, sulphur-white perianth, deep yellow cup, edged with bright orange; Gay Bird, pale primrose, yellow flattened cup, edged with orange; Spot Red, pale sulphur with brilliant orange-scarlet flat cup; Vasco, white trumpet; No. 139, white, with golden flattened cup, margined with a wide border of orange-scarlet; and No. 134, a Poeticus, with yellow, crimson-margined eye. Flowering shrubs have always been one of the most noteworthy features of the Truro show, for Cornwall is unrivalled in the rare and tender plants that can be grown in the open without protection. This year the competition was very keen, and there was not much to choose between the four prize-winners. The 1st prize was awarded to Mr. T. B. BOLITHO, in whose splendid stand were *Sutherlandia frutescens*, *Magnolia Soulangeana*, *Cerasus Watereri*, *Grevillea*, *Thelemanniana*, *Polygala oppositifolia*, *Jasminum primulinum*, *Embothrium coccineum*, *Barosma vetulina*, *Prunus pendula*, *Lopesia miniata*, *Enkianthus japonicus*, *Camellia reticulata*, *Andromeda formosa*, *Pernettya ciliaris*, *Chianthus puniceus*, *Viburnum Carlesii*, *Acacia Riceana*, *Cydonia Simonii*, *Skimmia Fortunei* and *Boronia heterophylla*. In the other stands excellent specimens of *Lapageria rosea*, *Clematis indivisa lobata*, *Calceolaria violacea*, *Boronia megastigma*, *Staphylea colchica*, *Acacia diffusa*, *A. obliqua*, *A. leprosa*, and *A. ulicina* were shown. In the class for six flowering shrubs, which was well filled, Mr. P. D. WILLIAMS won the 1st prize with *Viburnum Carlesii*, *Erica australis*, *Cydonia Knap Hill*, *Cytisus proliferus*, *Exochorda grandiflora*, and *Cytisus racemosus*.

Exhibits of hardy spring flowers were very good, and the entries numerous. Mr. P. D. WILLIAMS obtained the 1st prize with *Muscari Heavenly Blue*, *Caltha platypetala*, *Primula denticulata*, *Ourisia macrophylla*, *Tulipa odorata major*, *T. præstans*, *Iris bucharica*, the pink form of *Anemone pulsatilla*. In the class for six varieties of spring flowers, Rev. A. T. BOSCAWEN was placed 1st with splendid flowers of *Iris tingitana*, *Tulipa Clusiana*, *T. saxatilis*, *Fritillaria verticillata*, *Erythronium revolutum* Pink Beauty, and *Muscari conicum*. An interesting novelty was introduced in the shape of a collection of hardy flowers in a rockery, Mrs. POWYS ROGERS being awarded the 1st prize with a beautifully-arranged rock-garden containing *Gentiana acaulis*, *Viola alba*, *Anemone ranunculoides*, *Primula rosea*, *P. cashmeriana*, *P. Sieboldii*, hose-in-hose and blue Primrose, *Sanguinaria canadensis*, *Viola gracilis*, *Phlox amœna*, *Corydalis cheilanthisfolia*, *Dentaria enneaphylla*, *Ornithogalum nutans*, and *Aubrietia Dr. Mules*.

Rhododendrons were very fine. The 1st prize in the premier class was awarded to Mr. D. H. SHILSON; whilst the 1st prize for the finest truss of *Rhododendron* bloom was won by Mr. T. B. BOLITHO with a magnificent specimen of *R. grande* or *argenteum*.

Nursery exhibits included collections from the DEVON ROSERY, Torquay; Messrs. BARR & SONS, King Street, Covent Garden; Mr. G. REUTHE, Keston; Messrs. R. VEITCH & SON, Exeter; Messrs. HEATH & SON, Cheltenham; and Messrs. GEORGE BUNYARD & CO., LTD., Maidstone.

ROYAL CALEDONIAN HORTICULTURAL.

APRIL 13, 14.—The spring show of this society was held in the Waverley Market, Edinburgh, on these dates. Unfortunately, the first day was very wet, and the attendance was small, but

the second day was fine. There was a dearth of local trade exhibits, three only of the Edinburgh firms being represented, but other firms were present in numbers, and this, with an increase of 80 entries in the competitive classes, helped matters, so that the exhibition was about normal in size and importance. The quality of the exhibits, competitive and non-competitive, was very good. Amongst the honorary exhibits was a choice collection of *Odontoglossums* from Mr. R. BROOMAN WHITE's collection at Arddarroch; the judges awarded this a Gold Medal.

In the class for groups of miscellaneous plants, arranged on the floor, in a space 15 feet by 10 feet, the first prize was won by Sir ROBERT USHER, of Norton, Ratho (gr. Mr. G. McKinna), and the 2nd to Mrs. HUTCHISON, of Carlowie, Kirkliston (gr. Mr. J. Thom). The best group of Orchids, arranged in a space 8 feet by 5 feet, was shown by CHAS. DICKSON, Esq., Viewbank, Lasswade (gr. Mr. D. Mackay), the 2nd prize being won by Mr. JAS. WATT, Kirsewell, Carnwath. In the other plant classes the principal prize takers were Messrs. G. MCKINNA, A. McMILLAN (Douglas Castle), J. THOM, A. KNIGHT (Brayton), A. BRYDON (Innerleithen), W. G. PIRIE (Dalhousie Castle), D. KIDD (Carrberry Tower), J. PEARSON (Beechwood), W. T. GALLOWAY (Drylaw House), W. M. BRUCE (Rockville), and P. R. HILLS (Kinloch Castle, Rhum).

In the classes for cut flowers, among which the Roses were very good, the chief honours fell to Messrs. W. G. PIRIE, J. PARLANE (Row), J. GIBSON (Welbeck), J. PEARSON, A. KNIGHT, P. R. HILLS, W. GALLOWAY (Gosford), A. BRYDON and D. KIDD. In the classes for bouquets and floral designs and the decorated table, Mr. A. KNIGHT won most of the principal prizes.

Strawberries were the only fruits shown, and for a dish of these Mr. W. GALLOWAY won the 1st prize easily, Mr. G. MCKINLAY, Wreath Park, Bedfordshire, being placed 2nd. Mr. W. POU-PART, Twickenham, excelled in the class for bottled fruits (six bottles); 2nd, Mr. W. GALLOWAY. There was a good display of vegetables, and the leading prizes were won by the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), and Mr. G. MCKINLAY.

Eight plans were submitted by under-gardeners in the competition for laying out 16 acres of ground, with dwelling-house, as a pleasure ground and vegetable garden, and Mr. J. W. FORSYTH, Rosdhu, Luss, was placed 1st; Mr. A. DICKSON, Alloa Park, Alloa, 2nd; and Mr. J. SMITH, Mealegate, Cumberland, 3rd.

NON-COMPETITIVE EXHIBITS.

Messrs. BARR & SONS, London, showed a collection of Narcissi (Silver-gilt Medal); Messrs. HOGG & ROBERTSON, Dublin, displayed a choice group of Narcissi (Gold Medal); Mr. J. A. COOPER, Lissadell, also exhibited a collection of Narcissi (Silver-gilt Medal); and Messrs. TILLIE, WHYTE & Co., Edinburgh, were awarded a Bronze Medal for Narcissi and other spring flowers; Messrs. YOUNG & Co., Cheltenham, showed Carnations (Silver Medal); Mr. H. N. ELLISON, West Bromwich, made an exhibit of Ferns (Silver Medal); R. BROOMAN WHITE, Esq., Arddarroch, showed *Odontoglossums* and other Orchids (Gold Medal); Messrs. A. J. KEELING & SONS, Bradford, also staged Orchids (Bronze Medal); as did Mr. D. MCLEOD, Chorlton-cum-Hardy; Messrs. BAKERS, Codsall, had a group of Alpine plants (Bronze Medal); Primulas were shown by Dr. MCWATT, Duns (Bronze Medal); and Mr. W. ROBERTSON, Pilrig House, Edinburgh; T. ROCHE, Gowran, Kilkenny, staged St. Brigid Anemones (Silver Medal); Messrs. JOHN FORBES, LTD., Hawick, had forced Delphiniums, &c. (Silver Medal); Messrs. DOBBIE & Co., Rothsay, showed Pansies, Violas, &c. (Bronze Medal); Mr. JOHN PHILLIPS, Edinburgh, staged a group of foliage and other plants (Bronze Medal); Mr. D. W. THOMSON, Edinburgh, exhibited a group of Rambler Roses (Bronze Medal). A Cultural Certificate was awarded to Mr. A. McMILLAN, Douglas Castle Gardens, for a magnificent plant of *Oncidium sphacelatum*.

AWARD OF MERIT.

An Award of Merit was given to a new, pale pink Carnation, a cross between "Lady Carlisle" and "Mikado," exhibited by Mr. C. STRUT, Floors Castle Gardens, Kelso.

DUTCH BULB GROWERS' INTERNATIONAL EXHIBITION AT HAARLEM.

(SECOND SHOW.)

APRIL 15-24.—The second temporary exhibition of the Haarlem Jubilee Show was opened without formal ceremony on this date. The day was fine and warm, and there was a large number of visitors, especially in the afternoon, when the Queen Mother honoured the Society with a long visit.

The skill and foresight of the landscape architects and designers, Messrs. L. A. Springer, and Mr. H. J. Goemans were now very apparent, for there was a brilliant display of colour in the open, both in the large parterre and in the grounds under the trees. Here was a fine display of Hyacinths, Narcissi and the earlier varieties of Tulips.

The international jury were welcomed by Mr. E. H. Krelage early on the morning of the 14th in a quadruple speech of Dutch, English, German and French, and after the different sections had been formed they at once proceeded to make their awards.

The English members were Miss Willmott, Messrs. N. F. Barnes, P. Rudolf Barr, G. H. Cuthbert, A. Dawkins, Hugh Dickson, J. F. McLeod, N. Sherwood, H. Smith and R. Sydenham, whilst the deputation of the Royal Horticultural Society, Messrs. Harry J. Veitch, E. A. Bowles and Alfred H. Pearson, acted and made awards independently.

The entertainments provided for the jury and invited guests included a luncheon at the Show-Restaurant on the Thursday and a reception by the Burgomaster and a theatrical entertainment in the evening, followed on the Friday by a grand banquet at 6 p.m. at the Hotel Funckler, and on the Saturday by a motor drive through a great part of the bulb district.

The following are the awards of the R.H.S. deputation:—

Gold Medal to Mr. C. G. VAN TUBERGEN, Jun., for an extensive and highly-meritorious collection of new and rare plants.

Silver-gilt Flora Medals to Messrs. C. B. VAN NES & Co. for an exhibit of Rhododendrons; and to Mr. J. HARDIJZER (Boskoop) for a display of Coniferae, &c.

Silver-gilt Banksian Medal to Messrs. KERSBERGEN BROTHERS (Boskoop) for 25 seedling Azaleas.

Silver Flora Medals to the FIRMA WEZELENBURG for a large group of forced plants; to the LISSE ASSOCIATION OF DUTCH BULB GROWERS for beds of Hyacinths in the parterre; and to Mr. D. BAARDSE DZN for Hydrangeas and Begonias.

Silver Banksian Medals to Messrs. M. VAN WAYEREN & SONS for outside groups and Lilies; to Messrs. DE GRAAFF BROTHERS for Narcissi; to the HEEMSTEDE ASSOCIATION OF DUTCH BULB GROWERS for an arrangement of Hyacinths (outside); and to the NATIONAL HORTICULTURAL WINTER SCHOOL (Boskoop) for a collection of Japanese Maples.

Bronze Banksian Medal to Mr. N. DAMES (Lisse) for beds of Hyacinths.

Mr. C. G. VAN TUBERGEN well deserved his high award. Practically the whole of the firm's exhibit was arranged in the centre of the inner hall. Its general plan was a grass lawn with beds cut in it and filled with different plants. In two of the corner beds were Tulips, the one with Darwin varieties, and with Tulips *Fosteriana*, *prestans*, *Eichleri* and *Greigi aurea* in the other. Another corner contained a choice selection of Orchids, such as *O. undulatifolia*, *Cypripedium pubescens*, *C. acaule*, *C. calceolus*, and *Ophrys lutea*. In the fourth bed there was a selection of *Lilium elegans*; Prince of Orange, *marmoratum aureum* and *van Houttei* were three distinct kinds. In the beds in the centre, among other things, there were *Pæony Wittmanniana*, a beautiful white flower with a big bunch of stamens in the centre; *Habranthus pratensis*, *Zephyranthes carinata*, a fine white form of *Scilla italica*, *Corydalis Wilsonii*, *Tulipa Batalini*, *Anemone ranunculoides* var. "pallida," *Iris Bucharica*—a fine specimen of "Juno" *Iris*, *Anemone Allenii* and various *Lachenalias*. In another part there were three new *Freesias*, viz., Blue Jacket, purple Charmante, old rose and terra-cotta bronzy-red, *Tropæolum azureum* var. *violaceum*.

Messrs. C. B. VAN NES & SON had a splendid group of Rhododendrons on the right of the entrance into the large hall. It was almost entirely composed of Pink Pearl, White Pearl and the new wavy-edged Princess Juliana. *Kentia* Palms and *Cordyline australis* formed the background. The whole was very tastefully arranged. They had a second group in the inner hall, largely made up of *Rhododendron fastuosum* fl. pl., with various varieties on either side.

The Coniferae and other evergreens of Mr. J. HARDIJZER, of Boskoop, were good examples of their respective kinds, and, as each one was clearly labelled they formed a most instructive exhibit. They were planted in groups in different parts of the grounds.

The 25 seedling Azaleas of Messrs. KERSBERGEN BROTHERS occupied two large beds in the big hall. They were very well flowered, and ranged in colour from the palest primrose to the deepest orange-red. A. Russell Wallace, deep yellow with orange-red tips to petals; multatuli large, fiery salmon; Liberté, rose, with orange flush; Karl Marx, clear yellow; and Galilei, rosy orange, must be especially noted.

FIRMA WEZELENBURG had two fine collections of Azaleas, Rhododendrons, *Prunus triloba*, *Cerasus Pseudo-cerasus*, Lilacs, and similar plants, one on either side of the exit of the inner hall. The brighter colours were grouped next the door, and they gradually passed through harmonious tones of rose and yellow to Lilacs and Guelder Roses on the left-hand side and to *Prunus triloba*, Lilacs and *Cerasus Pseudo-cerasus* James H. Veitch and *Wistaria* on the right hand. *Azalea pontica coccinea speciosa* stood out prominently. The flowers are a deep-toned orange.

The LISSE ASSOCIATION have taken a leading part under the chairmanship of Mr. A. Guldemond, in supplying bulbs—Crocus, Hyacinths and Tulips—for the embellishment of the large parterre. This was now filled with the following kinds of Hyacinths: Mme. van der Hoop, Yellow Hammer, Roi des Belges, Gertrude and Queen of the Blues. They were all "miniature" size, and have been planted as an object-lesson to show the decorative value of these small bulbs.

As examples of extraordinary cultivation the 5-inch pots of *Begonia Gloire de Lorraine* in the cut-flower hall would be difficult to surpass. Each plant was a mass of pink bloom; there was hardly a green leaf to be seen. These were shown by D. Baardse Dzn, who also supplied hanging baskets filled with white and pink varieties of the same *Begonia* in the large halls. There is a very interesting thing about these plants: they come from Aalsmeer, where the ground is so soft that it is impossible to have boilers and hot-water pipes, and where all glass structures have to be heated with small portable stoves. The same firm also displayed some fine plants of *Hydrangea*.

Messrs. VAN WAYEREN & SONS had groups both inside and out. Those under cover were comprised of Funkias, Lily of the Valleys, *Dicentra spectabilis*, and Cannas, while those in the open included a large collection of bulbous and a few hardy herbaceous plants.

Messrs. DE GRAAF BROTHERS had some grand new Narcissi, including Golden Jubilee, an almost ideal, giant yellow-self incomparabilis; Princess Juliana, a refined, deep-yellow bloom of perfect form belonging to the magni-coronata section; Reullura, a charming, dainty-looking, pale-trumpet variety, which opens almost white; Red Beacon, a bright-red eye with a pure white perianth, interesting as being the variety the Queen Mother admired as she passed the stand; Vulcana, a red and yellow double flower, probably the most striking of all the Copeland doubles; Uncle Robert, the giant white magni, a little top-heavy perhaps, but still remarkably fine; and Czarina, one of the very best of the giant Leedsii.

The HEEMSTEDE ASSOCIATION OF BULB GROWERS had a large exhibit in the park, consisting of Hyacinths in beds. Each bed was composed of a variety of one colour in different shades. Thus the blue bed had Johan, Lady Derby, Enchantress, Perle Brilliant, Schotel, Competitor and Princess Wilhelmina. The pink one had gigantea, Ornament Rose, Rose à Merveille, Mme. Neilson and Gertrude; and the purple, Laura, Charles Dickens (violet) and Sir W. Mansfield. The mingling of the shades was a fine object-lesson for visitors.

The NATIONAL HORTICULTURAL WINTER SCHOOL, of Boskoop, had well-grown Japanese Maples, amongst which were palmatum ornatum with brown, fern-like foliage and palmatum rubellum with green, finely-cut leaves. They also had an interesting exhibit of sweet-scented *Azalea occidentalis* hybrids ranging in colour from white to pale pink.

In the display of Mr. N. DAMES, of Lisse, the most interesting was the bed of the new deep-rose Hyacinth *Le Victoire*, edged with a new, early, white kind named *Arentine H. Arendsen*. The trusses were showing colour on the 23rd of March, and were now at their best.

OTHER EXHIBITS.—An interesting feature of the exhibits in the park was the opportunity they afforded of comparing different varieties of either Tulips, Hyacinths and Daffodils (*Narcissi*). No fewer than 15 of the 39 districts into which the society is divided sent combined exhibits, as well as private firms, such as Messrs. M. VAN WAVEREN & SON, J. J. GRULLEMANS & SONS, WARNAAR & CO., of Sassenheim, ANT. ROOZEN & SON, and WEST END NURSERIES, Lisse. Mention must also be made of the *Hippeastrums* (*Amaryllis*) shown by M. GEERS, VAN VELSEN; *Azalea indica* displayed by A. VAN DEYL; the group of *Rhododendrons* staged by Messrs. KOSTER & SON, Boskoop; *Azalea mollis* Mrs. L. J. Endtz from Messrs. ENDTZ VAN NES & CO.; *Polyantha Rose* Boskoop Baby shown by Messrs. KERSBERGEN BROS.; the fine cut Lilacs of Messrs. D. & J. KEESFEN; *Hydrangeas* staged by Mr. D. BAARDSE DZN; *Hippeastrums* (*Amaryllis*) shown by Mr. A. W. INGENHOES VAN SCHAIK; and the *Narcissi* of Messrs. S. A. VAN KONIJNENBURG & CO. Attention, too, must be called to the grand specimen half-ball and obelisk-shaped standard Laurels in tubs and to the very numerous cut Box trees. The topiary art is intimately connected with Holland, and it was appropriate to find many good examples scattered about the grounds. An interesting contribution was the "Chantecler" farmyard enclosed in a semi-circle of Irish Yews.

Obituary.

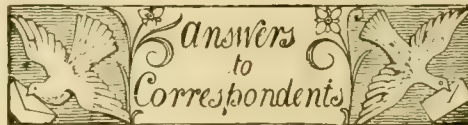
GEORGE SHARP SAUNDERS.—We regret to have to record the death of Mr. George Sharp Saunders, F.L.S., F.E.S., who passed away on the 10th inst. at his residence, Littlethorpe, Burgh Heath, Surrey, after an illness of some months. Mr. Saunders was a son of the late Mr. W. Wilson Saunders, F.R.S., the author of *Refugium Botanicum*, treasurer of the Royal Horticultural Society from 1855 to 1862, and secretary from 1862 to 1866. The son was soon initiated in horticulture, but his bent lay more towards the study of insects than of other living things, though he took a keen interest in many branches of natural science. He became well known as an expert in economic entomology, and his opinion was on this subject widely sought and greatly valued, by none more than by the Scientific Committee of the Royal Horticultural Society, whose meetings he regularly attended for many years. His knowledge of entomology was always at the disposal of enquirers, and his ready courtesy and clear expositions of life histories and so on made his communications of real value. He was the author of several clearly-written articles (not all of them signed) on insect pests in the horticultural Press. He was a skilled draughtsman, and made a considerable number of coloured drawings of teratological subjects of great interest and value to the botanist. When, in 1906, the Rev. W. Wilks was obliged, through pressure of work, to give up the editorship of the R.H.S. *Journal*, Mr. Saunders was appointed to succeed him, and he edited the *Journal* until 1908, when ill-health obliged him to resign. He was elected a Fellow of the Linnean Society in 1899 and served upon the Council from 1902 to 1905, and he was also a Fellow of the Entomological Society. The funeral took place at Wandsworth, where deceased had lived for many years.

ABRAHAM DEAN HARTLEY.—We learn from *Horticulture* of the recent death of Abraham Dean Hartley, landscape gardener, of Philadelphia, Pa. Mr. Hartley emigrated to America from England in 1867.

ARTHUR BOYLE.—We regret to record the death, on March 24, of Mr. Arthur Boyle, at Santa Fe, N.M. The *Florists' Exchange*, in the course of an obituary notice (April 2, 1910), gives the following particulars of Mr. Boyle's career. Born in Newcastle in 1840, he went abroad at an early age, and, after spending some time in the service of the Rajah of Sarawak, Borneo (Rajah Brookes), Mr. Boyle settled in Santa Fe, where he carried on the business of florist.

JOHN HAY.—The funeral took place at Nellfield Cemetery, Aberdeen, on Saturday, 16th inst., of Mr. John Hay, retired gardener. Mr. Hay, who had reached the ripe age of 75 years, was a native of Culsalmond, Aberdeenshire, and served his apprenticeship at Newton, Inch, the country seat of Mr. A. M. Gordon, Convener of the County of Aberdeen. After service in the capacity of gardener at several county houses, and particularly at Corse, Lumphanan, Aberdeenshire, where he also undertook the duties of forester, Mr. Hay was appointed head gardener to the late Lord Provost Nicol, Aberdeen. Subsequently, he served for some time as gardener at Ashley House, Aberdeen, and, on leaving this situation, took up the duties of custodian and superintendent of the City Churchyard at Aberdeen, in the most densely-populated part of that city. Mr. Hay retired from active work five years ago.

JOHN SHEDDEN.—The death of Mr. John Shedden is recorded in the *Florists' Exchange* (April 2, 1910). The deceased was born in Scotland 53 years ago, but had lived in Pawtucket, R.I., U.S.A., for 23 years. Mr. Shedden leaves a widow, but no children.



APHIS ON VINES: G. H. Try the effect of syringing with clear water. If some nicotine compound is employed, such as you suggest, extreme caution will be necessary to avoid an overdose. The Box hedges should be clipped in May.

CULTIVATION OF GERBERA JAMESONII: B. L. & G. M. This plant requires to be wintered in a cool greenhouse or cold frame. A few degrees of frost will not harm them while they are dormant, provided the soil is not wet at the time. Indeed, they may be grown entirely in the open in warm, dry situations, but, generally, the winter rains prove injurious. Seeds may be sown in pots at any time. If sown in heat, early in the year, some of the plants will flower in August or September. A suitable mixture for potting consists of about equal parts of good turfy loam, peat and leaf-mould, with a fair sprinkling of sharp silversand. When the plants are large enough to flower and the pots well filled with roots, they will be benefited by doses of weak liquid manure, given two or three times each week. If planted out in a frame in a similar compost to that advised for potting, they will furnish flowers for cutting. The blooms remain fresh for a long time in water. Gerberas may be planted on rockeries or sunny borders during May, and if they are planted in clumps of five or six they are very effective. They may also be used for this purpose, plunged in their pots. Old plants should have a little of the soil shaken from the roots early in the spring and afterwards be re-potted. If kept under close conditions for a week or so and syringed occasionally, they will soon commence to make new growth. Such plants make the best specimens for planting out-of-doors.

FIG LEAVES DISEASED: T. C. and Fig Leaves. The blotches are caused by a fungus, *Cercospora Bolleana*. The disease can be kept in check by sponging the leaves with a solution of soft soap.

INSECTS ON VINES: *Insect.* The beetle, *Elatér* sputor, is known as Skip Jack or Click-Beetle. The wireworm is the grub of this insect. The pest has probably been introduced with the old turf used in making the border. Trap them with pieces of vegetable, such as Carrot or Potato.

JAMAICAN PLANTS: W. A. B. As you intend to visit Jamaica, your best plan would be to visit the Botanic Garden at Castleton. No doubt the officials will furnish you with all the information you require. They will also explain the best methods of packing plants and cuttings for transmission to this country.

LAWN INFESTED WITH LICHEN: C. W. You should use some nitrogenous manure, which would cause the grass to grow so luxuriantly as to crowd out the lichens. Neither kainit nor the bonemeal which you have used would have this effect, though, under normal conditions, these manures would assist the turf. The lichen is an indication of a poor and wet soil.

NAMES OF FRUITS: H. H. Apple Royal Shepherd.—E. W. Braine. The variety is probably Northern Spy.

NAMES OF PLANTS: C. D. 1, *Podocarpus chilina*; 2, *Pernettya mucronata*; 3, *Thuya dolabrata*; 4, *Cupressus pisifera plumosa*; 5, *C. p. pendula*; 6, *Azara microphylla*.—H. G. *Sterculia diversifolia*.—G. A. 1, *Thuya dolabrata*; 2, *Odontospermum maritimum*; 3, *Mesembryanthemum spectabile*; 4, *Eupatorium riparium*; 5, *E. trapezoideum*; 6, *Alyssum maritimum*.—T. T. 1, *Cochlioda sanguinea*; 2, *Odontoglossum crocidipterum*; 3, *Oncidium barbatum*; 4, *Pleurothallis tridentata*; 5, *Stelis Rodriguezii*.—H. W. *Oncidium lamelligerum*.—R. H. E. *Corydalis bulbosa*.—T. H. *Cypripedium conspicuum* (Harrisianum \times villosum).—R. F. H. *Coelogyne corymbosa*.—G. H. H. W. *Calceolaria pinnata*.—C. W. B. *Tussilago Petasites*; 2, *Keria japonica flore pleno*; 3, *Lunaria biennis*; 4, *Lamium maculatum*.

NECTARINES SPLITTING: L. R. B. The trouble is caused through too much moisture at the roots.

PALM LEAF: H. C. The damage is not due to disease, but to error in affording water. Too much or too little moisture at the roots has caused the injury. Palms which have been used for the decoration of dwelling-rooms frequently show such disfiguration, the trouble being also influenced by the dry atmosphere.

PELAGONIUMS DISEASED: T. H. The blackening is a bacterial disease which manifests itself when plants containing the germs receive a check during growth, aided by the presence of too much water in the soil. There is no cure. Tainted stock should not be used for propagation.

ROSE DISEASE: Ebor. The blotches are caused by *Botryosphaeria dothidea*. Diseased shoots cannot be cured, but should be cut out and burned.

SEEDS FOR EXAMINATION: *Correspondent.* The seeds are not those of *Papaver somniferum*; they belong, apparently, to some member of the Leguminosae.

STRAWBERRY LEAVES WITH SPOTS: W. T. The spots are caused by *Sphaerella fragariae*. Spray with Bordeaux mixture at half strength. In the autumn cover the fading leaves with a sprinkling of straw or dry litter and set fire to it. By this means all the infected leaves will be destroyed.

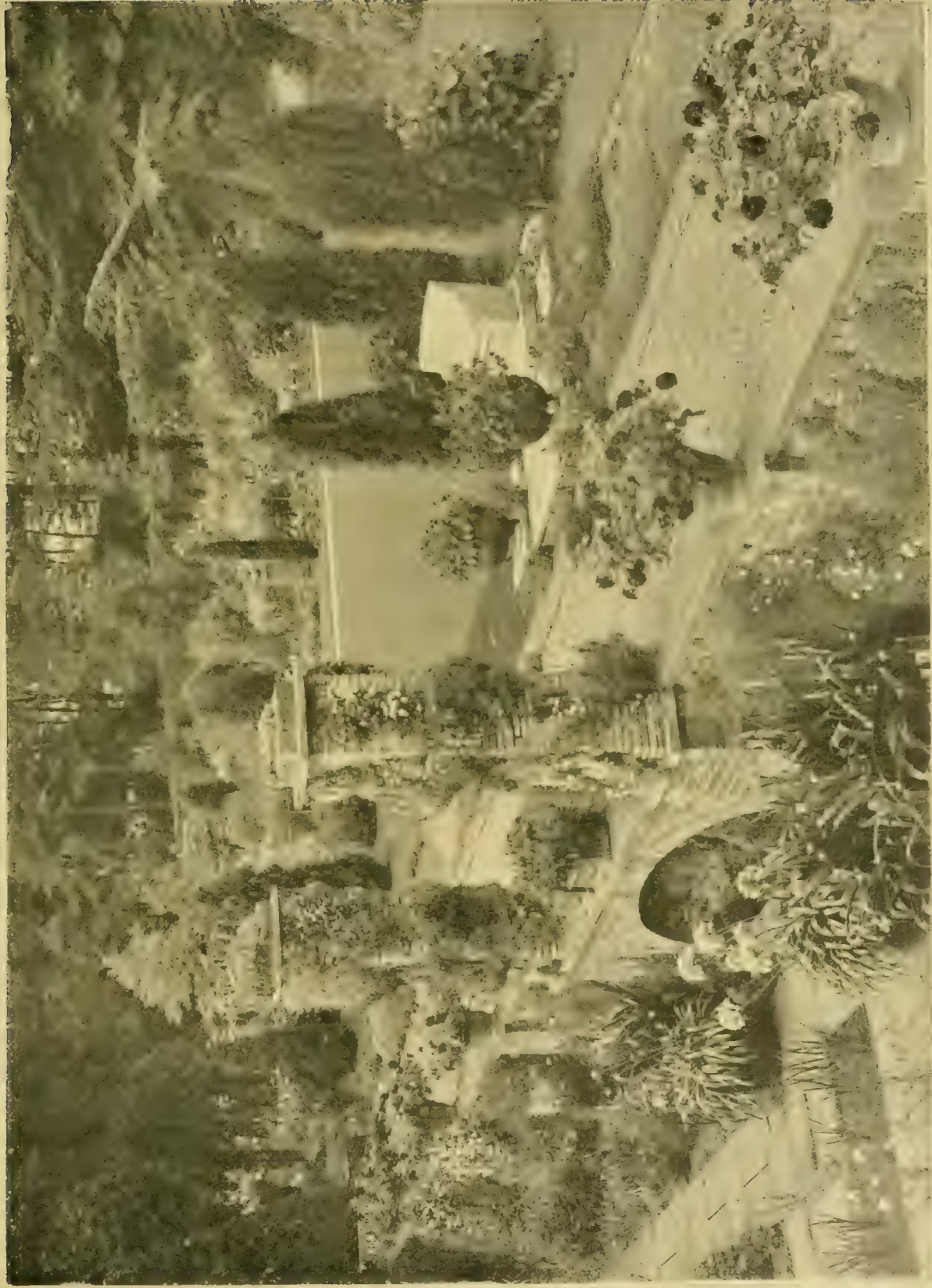
TOMATO LEAF FOR EXAMINATION: H. S. The specimen was withered and insufficient for determining what had caused the trouble. Send other specimens more carefully packed; in the meantime spray the plants with the Bordeaux mixture.

UNDER GARDENER: B. S. B. Unless you have experience of garden work, you could only start as a garden labourer.

VINE LEAVES: W. L., A. A. P. and W. D. No disease is present, and the trouble must be attributed to some wrong cultural treatment, which only those on the spot can determine.—C. C. The vine is attacked by a fungus called *Hormodendron hordei*. Spray the vines at intervals with liver of sulphur, in the proportion of 1 oz. to three gallons of water.

VINE WEEVIL: H. A. C. As the larvæ feed on the roots of the vine in spring, they can be destroyed now by dressing the soil with either of the substances you mention.

Communications Received.—L. G., Brussels—Lady G. D.—W. W.—D. W.—L. C. C. S.—James G., Cheshire—D. C., Co. Kerry—B. G.—Mrs. P. H. S.—W. B. H.—W. F.—Japonica—H. B.—C. S. P.—Minstead—A. Dean—A. J. E.—H. S.—W. P. S.—J. L. B.—A. B. R.—W. P.—J. D.—F. M.—W. J. R.—A. McK.



Photograph by Thomas Smith.

A GARDEN-SCENE AT WALMSGATE HALL, LINCOLNSHIRE, THE RESIDENCE OF T. DALLAS YORKE, ESQ.

THE Gardeners' Chronicle

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THE GARDEN OF RICHARD NECKHAM.

RICHARD NECKHAM was born in 1157, on the same day as Richard I., whom his mother nursed. He died in 1217. Neckham was a prolific writer, but only two of his works have been printed, viz., *De Naturis Rerum* and *De Laudibus Divina Sapientia*, both of which were published in 1863. The first contains several chapters on plants, on grafting, and one chapter devoted to a descriptive list of garden plants. The second is a poem divided into ten "distinctions," one of which relates solely to herbs, and another, to cereals and trees. It is not improbable that Neckham, who was a priest, may have been indebted to others for some of his material, but, whether or no, his contributions to the literature of horticulture must ever remain unique, on account of their priority and also because they throw a luminous, if a narrow, beam on the general darkness that enshrouds the gardening-practice of the period. From the way he moralized on every subject, he may be considered a medieval Ralph Austen, but Neckham exhibits less of this peculiarity in his discussions on plants, than in any other part of his volumes. He was very fond of "showing off," and, to some extent, he was betrayed into an exhibition of his knowledge of the botany of his day in the chapter on Gardens. But, taking his writ-

ings on the subject as a whole, with all their faults, we have every reason to reverence his memory for the details he has left to posterity.

The early botanist had to contend with great difficulties. Some plants had many names, some names stood for many plants; of the Marigold, Neckham remarks that it had a choice of many designations. It was called Intiba, Cichorea, Dionysia, Sponsa Solis, Solsequium, and Heliotropium. Our author notes of Apples that they smell sweeter than Pears, though the latter are the more desirable, and also that, whereas Pears sink in water, Apples float. Pears, he considered, should always be eaten with wine, and after dinner, when Quinces also should be eaten. All soft fruits, including Cherries, Mulberries, Grapes, and also Apples should be consumed whilst a person is hungry, or before partaking of food. These curious distinctions, it may be added, are greatly amplified in the *Book of Nurture*.

In sauntering round the garden with Neckham, entertained by his chat on plants and other matters not quite to the purpose of our stroll, we cannot fail to remark how flowers, vegetables, and fruits grow together almost promiscuously. We have occasionally a little difficulty in determining the particular vegetable or flower to which he refers, and his translators accordingly have sometimes failed, as perhaps all will fail who attempt it, to find modern equivalents to fit his names. He does not, like some subsequent authorities, apologise for this and that plant that it has no use beyond its beauty, though we gather that utility is, to him, also the main reason for cultivating plants.

"Here," he remarks, "the garden should be beautified with Roses and Lilies, with the Marigold and Violets," with Wallflowers "and Mandragoris," a plural word which would include Henbane. "There you should have your Parsley, Costmary, Fennel, Southernwood, Coriander, Sage, Savory, Hyssop, garden Mint, Rue, Dittany, Smallage, Pellitory, Lettuce, garden Cress, and Pionia, and whole beds should be planted with Onions, Leeks, Garlic, Pumpkins, and Shallots, and this would be a nice place to grow the bulging Cucumber, the white Poppy, Narcissus, and Acanthus. Nor would you ever want herbs for your pottage if the garden were abundantly stored with Betes, Mercury, Orach, and Sorrel, and also Mal-lows. Then Anise, Mustard, 'White Pepper,'* and Wormwood afford much profit to the gardener. And a really fine garden will supply you with fruit—Medlars, Quinces, Warden and St. Rule Pears, Peaches, Pomegranates, Citrons, Oranges, Almonds, Dates—here our eyebrows go up—and Figs. But there is no use mentioning such things as Ginger, Cloves, Cinnamon, Liquorice, Zedoary, Myrrh," and many other foreign gums and spices which he details. "However, if you will take my advice, a spot will be found for Saffron and Woad. Moreover, who is insensible of the virtues of Thyme and Pennyroyal! Every body knows that Borage and Purslane are indispensable in one's dietary, and that Asarabacca, which is called Vulgago, is splendid for stomach complaints. And Rocket, too, and Orchises, which are exciting herbs, are counteracted by the coolness of Chicory." After

* Probably Ammi majus or Carum carui.

a brief lapse, to explain why special animals were sacrificed to certain deities, he continues his discourse on plants, and relates how "there are those who interest themselves in the work of distinguishing between Solsequium and our Marygold, which is called Calendula, as well as between Artemisia (Mugwort) and our Feverfew, which is called Febrifugium. It is agreed also that while one herb is Jovis barba another is Barba Jovis." So very particular were these Monkish botanists! Then he recites a short verse, which seems to have been taught in all the schools:—"The garden Iris bears a purple flower, Iris florentina a white; the wild Iris a yellow one, but the Gladwyn none." And just before showing us out at the garden gate, he does not fail to remind us that "Horehound, Dog's Tongue, Macedonian Parsley, Dragons, Sowthistle, Angelica, Coriander, Patience, Galingale, and Madder are herbs of note," and pleasantly refers us to Macer and Dioscorides for further information.

It will be noticed that the garden which was familiar to Neckham, besides furnishing the few vegetables which were cooked for the table and a nice selection of fruit, provided also salads, a great quantity of herbs to distil, a selection for medicinal purposes, and a few for dyeing the cloth that was spun, and perhaps woven, in the household.

In the second volume, a much larger number of plants is named, and, as in the first, references to flowers, &c., occur in those portions devoted to other subjects. In the chapter devoted solely to herbs, besides the names, their virtues and evil effects are detailed. It is, indeed a kind of herbal, and it is not a little remarkable that the curative properties which were attributed to some of the plants in the twelfth century are identical with those ascribed to them at the present day. The juice of Onions, for instance, applied to the ear, was a specific for earache; Borage, when rubbed in, was a specific against wasp stings, spider bites, and gout.

The Rose and Lily receive special attention. Of the former he tells us that "it is pleasantly clothed in ruddy purple, delightfully splendid, the glory of the garden. It is a flower appropriate to young women, and pleasant to youth, and affords a charming token of the bashful maiden." The Lily is described as white, Sweet Violets ferrugineus, Roses red, Hyacinths purple, and Narcissus shining with splendour. In the succeeding chapter, a fair number of trees are named and their qualities noted. The way to use Pears is again described, and Marmalade—"condita citonia melle" is mentioned. The part in the "Garden" in which reference to certain deities is made, recurs here, under the Myrtle. The concluding stanza informs the reader of his anxiety to know why no flower is green. There were flowers gleaming with snowy whiteness, others purple, some yellow or adorned with blue, even Ebony was covered with blackness. The reason for this he explains more to his own satisfaction than to that of his reader. All the same, we feel sorry to part with him. We sympathise with his lack of knowledge in some things, and his credulity in others, but, above all, are grateful to him for introducing us to the early English garden and its flourishing occupants. R. P. Brotherston.

AURICULA "WARLEY."

THE show Auriculas which come under the designation of selfs, have hitherto produced but few colours. The oldest self colour, if we except the original yellow, is the dark colour which florists term "black." In John Rea's *Flora*, published in 1676, he alludes to one named "the Black Imperial." It was "of so dark a purple colour that, without much error, it may be called black, with fair, snow-white eyes. This was raised in Oxford." Black Emperor was a similar type of flower, also with fair, white eyes.

The colours at the present time amongst the self Auriculas, in general cultivation, are the dark, almost black flowers with white centre, violet or bluish-violet, and red or crimson. I have tried for many years to obtain some new colours, but it has been a long and tedious way to travel. Nevertheless, distinct breaks have been obtained, which are sufficient to show that there is a fair and pleasant field for the florist to work in who cares to spend his time in improving the form and colour of his Auriculas. Warley belongs to the self Auricula of the show type. It has the gold tube, round white centre, and the margin, of a lavender colour. We have also seedlings which exhibit rich yellow colours, some apricot, others scarlet, rose and bronze, all of them of the type of the show Auriculas in the self class. There is room for improvement amongst them, but this is the more reason why amateurs should take up this work and try to get not only new colours, but to work them up to the standard of excellence of the old colours which have existed in the show Auricula for 300 years. There are now hundreds of amateurs raising Auriculas from seed, but most of them look for the self colours already in existence, or the varieties with green, grey, and white margins. The amateur may still search for these, and do his best to improve them; at the same time, he should keep a good look-out for any flowers which are beautiful in themselves and present unusual shades. The variety Warley and many other new colours have been obtained in this way, and there must be no standing still; a new type or a new break is merely a starting-point whence greater progress may be made and more beautiful varieties obtained. The man who loves flowers is never satisfied; he sees the means by which more and more beautiful flowers may be obtained for his garden, and he cannot rest, because the quest is endless. J. Douglas.

THE ALPINE GARDEN.

THE SPRING-FLOWERING PHLOXES.

THE various species and varieties of Phlox are almost indispensable in gardens where flowers are required from early spring until late autumn. The spring-flowering Phloxes are of different habits and possess different qualities from such as *P. suffruticosa* and *P. decussata*, but they are very beautiful when in flower. Their cultivation presents few difficulties. The majority of the low, trailing species and varieties prefer a dry soil and a sunny position, but those of a more erect growth thrive better in the flower-border than on the rockery, provided that the soil is not too dry. The taller varieties may be propagated by division, and those of the subulata and stellaria class by means of cuttings inserted in summer, after the plants have done blooming. The shoots may be taken off either with or without a heel of the old wood. In the latter case they should be made about 2 inches long and be inserted about two-thirds of their depth in sandy soil, surfaced with sand. After planting, they should be well watered, and covered with glass until rooted.

PHLOX SUBULATA.—This species is known in some parts as the Moss Pink; it is one of the most valuable of the section, and in the rock-

garden there are few subjects which surpass it when in bloom. The plant is of trailing habit, and has spiny foliage. From April to June the whole plant is covered with a profusion of beautiful little flowers. It has given rise to many varieties, practically all of which are hardy, but one of the most beautiful, named Vivid, is more tender than the rest, and is sometimes destroyed during a severe winter. This Phlox prefers ground that is rather dry in winter; if the soil is not very porous, it is advisable to lay a sheet of glass, raised about 6 inches from the ground, over the plant, to throw off the rains. In the south of England this protection is not necessary.

P. s. atropurpurea is one of the oldest and best of the varieties. It has fine, reddish-purple flowers, with a darker zone, and is remarkably easy to cultivate, but it should be placed where it enjoys the full sunshine.

PHLOX STELLARIA.—This species is much laxer and freer in growth than *P. subulata*, and even more useful for hanging over large stones, although it does not cover itself so densely with flowers. The typical plant has pale lilac or white, starry flowers; the variety Bridesmaid has white flowers, tinted with lilac. Some class lilacina with *Phlox stellaria*, and there is a variety, G. F. Wilson, of somewhat the same shade, but *P. stellaria* does not suffer so much from cold in winter as *P. subulata*.

PHLOX REPTANS.—This is another early-flowering Phlox, though of quite distinct character from the foregoing. It is a low-growing plant, with rather round leaves and small, rose-coloured flowers with a darker centre. It sends out little runners, after the habit of the Strawberry, and these root readily when pegged down.

PHLOX AMENA.—The habit of this species is similar to that of *P. reptans*, but it does not



[From a photograph by J. Gregory.]

FIG. 118.—SHOW AURICULA "WARLEY": COLOUR, GREYISH-PINK WITH WHITE PARTE.

P. s. lilacina is not quite so dense in its growth as Newry Seedling, but it has flowers of much the same colour—a soft lilac blue. But Newry Seedling is the finer of the two in regard to both habit and flowering. *P. s. Model* has beautifully-formed flowers of a deep rose colour. *P. s. Nelsonii*, possibly a hybrid, raised by the late Rev. J. G. Nelson, of Aldborough, is one of the most beautiful of all, with its masses of snowy-white flowers and its closely-tufted, spiny foliage.

The blooms of *P. s. Sprite* are bright rose, with an attractive, deep carmine centre. *P. s. The Bride* is a good white variety; *P. s. Vivid*, the tender variety already referred to, has bright rose-pink flowers, which are small compared with those of some of the others. This variety is one of the best for gardens. Fairy is another pretty variety.

increase so rapidly. The season of blooming is from May to June. The flowers are rose-coloured, and larger than any described above. This species, scarcer in gardens than *P. reptans*, is a most desirable plant. There is a little-known, variegated variety.

PHLOX CANADENSIS.—The exhibition of the very beautiful variety of this Phlox, named Laphamii, has properly drawn attention to the different forms of this species, which is of erect habit, and flowers from April to July. It is about a foot high, and has pale-blue flowers. Laphamii, or Lapham's variety, as it is sometimes called, is more vigorous in its growth than the type, and produces large trusses of well-shaped, bluish-violet flowers. Perry's variety is another good form of similar habit, bearing flowers of the charming colour of *Plumbago capensis*. Violet Queen is another form, the blooms of this being

of a deep violet, shading into a kind of crimson purple towards the centre of each bloom.

PHLOX PILOSA.—This is referred to in the *Kew Handlist* as *P. amœna*, but the two plants are recognised by Britton and Brown as distinct species, and for garden purposes this distinction is desirable. It is more downy, and the leaves are more pointed, than those of *P. amœna*. The flowers are purple, pink, or white, a pale purple or bluish one being generally supplied as the type. A white variety is offered by nurserymen under the name of *pilosa alba*; and Brilliant, another variety, has bright crimson blooms. We have every prospect of obtaining a charming set of garden plants from the last two species, and at the last Temple Show Mr. Amos Perry exhibited some beautiful varieties of these Phloxes. *P. pilosa* generally grows from 9 inches to 15 inches high.

PHLOX OVATA.—This is another, very beautiful Phlox, with red flowers and ovate leaves, flowering from May onwards. In its native habitat it grows in woods, and is thus a useful plant for shaded positions, although it does well also in sunny places.

PHLOX MACULATA.—Although not very commonly grown in gardens, *P. maculata* is worthy of a place, because of its greater stature and its season of flowering being from May to August. It grows from 18 inches to 24 inches high, and has usually pink or purple blooms; there is, however, a white variety. The stems are spotted with red, hence the name *maculata*.

PHLOX DOUGLASSII.—Though in cultivation at Kew, this species is not usually met with in nurseries. It is, however, a pretty plant, of the same habit as *P. subulata*, producing purple or white blooms on creeping, or trailing, shoots, provided with narrow leaves. *S. Arnott*.

NOTICES OF BOOKS.

FRUIT TREE PRUNING.*

As the reader is informed at the commencement, this book is intended by the author to serve as a practical handbook for fruit growers, working under the climatic and economic conditions prevailing in temperate Australia. It is divided, as regard its contents, into three parts, the first of which deals with basic principles, such as the objects of pruning, observed facts on which the theory of pruning is based, seasons for pruning, pruning tools and how to use them, the parts of the tree, the designing of the tree, development of fruit-bearing wood, classification of the shoots of deciduous fruit trees, and pruning to avoid decay. The second part is concerned with tree-pruning of deciduous fruit trees, the Apricot, Plum, Cherry, Almond, Peach, Nectarines, Apple, Pear, Quince, and Fig. Part III. treats of the Orange, Lemon, other Citrus trees, and the Loquat.

The two previous editions of this booklet (issued in 1900 and 1901 respectively) met, the author states, with a sympathetic reception from the horticultural and general Press of Australia. From the great demand for copies which came from fruit growers, both commercial and amateur, the author considers that this success was due in great part to the merit of the work.

In the present edition fresh matter and some rearrangement of the text, as well as new plates, have been freely introduced. The author has a strong belief in the value of pictorial aids to instruction; and there are not many pages without one or several illustrations. The principal new feature is the attempt made to define and classify each type of annual growth found upon the deciduous fruit trees dealt with in the text.

* By G. Quinn, Horticultural Instructor, Department of Agriculture, South Australia. Adelaide: By Authority, R. E. E. Rogers, Acting Government Printer, 1910; price 1s. 3d.

The ultimate objects sought in pruning are to cause the tree to produce more regular crops, to improve the quality of the fruit, and, whilst doing this, to maintain its vitality over a considerable period. These various objects are plainly stated, the way to secure them indicated, and many kinds of tools used in pruning are shown as wood cuts or photographs. The secateur seems to be the favourite pruning instrument in Australian orchards.

The chief object in fruit growing is fruit, and the reader is efficiently instructed by word and figures how he must prune to obtain it in abundance.

The examples of good and bad pruning are very enlightening, as are those on the formation of a "head."

It is obvious that the cultivator at the Antipodes has nothing material to learn from Europeans; indeed, it is quite the other way, judging from the importations of Australian Apples and Pears, and the fruit grower in the "home land" would do well to read this excellent book.

THE CULTURE OF VEGETABLES AND FLOWERS.†

The repeated editions of this excellent work, issued by Messrs. Sutton & Sons, are a certain indication of its popularity. The information is trustworthy, as might be expected from a firm of world-wide repute, and reference to the various subjects is rendered easy by the arrangement of them in alphabetical order. The more important chapters are those devoted to the culture of vegetables, a year's work in the kitchen garden, rotation of crops, the chemistry of garden crops, the culture of flowers from seed, the culture of flowering bulbs, flowers all the year round, the treatment of lawns and tennis grounds, and garden pests of many kinds.

Asparagus is dealt with in a long chapter, in which are described the various modes of forcing this favourite vegetable, illustrated by a diagram. Early sowing and planting of Kales is recommended, so as to ensure a long season of growth. For Broccoli, if this crop should follow Cabbage, Turnip, or Cauliflower, the authors advise heavily-manured land, and slaked lime dusted into the holes. If the land is in good heart, it is prudent to be sparing with manure, as high manuring tends to induce succulent growth late in the season, which is inimical to the chances of the plants surviving a hard winter. Many gardeners would prefer to plant on hard ground previously manured.

Carrots are, as is well known, rather fastidious as regards soil, and long-rooted varieties cannot be sown on shallow soils, the best varieties for these, we are told, being Champion Horn, Sutton's Gem, and Intermediate.

The chapter on Cauliflowers contains numerous useful hints for the cultivator. We learn that in Cornwall the autumn sowings are made in October, and north of the Trent in the first week in August. Those who sow the variety, First Crop, in warmth in January secure small heads in May, and succeeding sowings may consist of Sutton's Magnum Bonum, Purity, and White Queen, sown in January and onwards. In this manner the various vegetables come under notice, nothing being omitted. Those useful adjuncts to good cookery, Herbs, are dealt with in six pages of descriptive text, and the remarks on Peas, Potatoes, and Tomatoes also occupy adequate space, and afford abundance of useful information.

The directions for the sowing, treatment, and culture of flowers of hardy biennials and perennials are succinctly but clearly given. The notices of varieties might have been extended with advantage. The chapters on Narcissi, Lilies, Hyacinths, and Tulips are satisfactory, but they also might, with advantage, be more detailed. The book contains a full calendar of garden operations for the year.

† Sutton & Sons, Reading; price 5s. net

CULTURAL MEMORANDA.

THINNING PEACHES.

THIS is work that requires to be done with a bold hand, guided by experience as to the size to which certain varieties of the Peach and Nectarine attain under skilful and generous treatment; it must not be done indiscriminately. The vigour and size of each tree must be considered in determining the number of fruits which it shall carry as a crop without impairment of its permanent welfare. The thinning-out of the fruit is usually done at the same time as the last stage of disbudding, and, as in that operation, it is advisable to extend the process of thinning the crop over a week. In the final thinning the fruits should be left from 9 to 12 inches apart every way on the trellis or wall, retaining, as a matter of course, the most even-sized and best-placed fruits on the side facing the glass. Most growers defer the final thinning until the fruits have completed the process of stoning, fearing to do so before, in case some of the fruits drop in stoning. As a matter of fact, this cautious method of procedure is illogical and well calculated to bring about the very thing it is intended to prevent. For the energies of the trees are needlessly and severely taxed in the stoning of a crop of fruit, the greater proportion of which the cultivator intends to destroy later. There is no fear of strong, free-growing, healthy Peach or Nectarine trees dropping their fruits in the process of stoning, when cropped as recommended above, provided that the cultural requirements are properly attended to, and, especially, if the soil about the roots is kept uniformly moist and the foliage clean. In the case of trees which have suffered from neglect in these respects, there is the more reason for reducing the number of fruits to 15 inches from fruit to fruit every way before the stoning stage is reached. Avoid over-cropping of the trees as the greatest evil in fruit culture, and always bear in mind that a dozen well-grown Peaches or Nectarines are preferable to three times that number of smaller fruits. Weakly-growing trees should be cropped very lightly indeed, so as to enable them to make and mature stronger wood for yielding fruit the following year.

In thinning the Nectarine crops, it must be borne in mind that the individual fruits of Nectarines do not attain to such large dimensions as Peaches. The fruits should therefore be left closer together on the trees, say, from 6 to 9 inches, according to the size which the varieties cultivated are known to reach under ordinary and special cultural treatment. As already stated, the general condition of the individual trees must be considered in determining the number of fruits to be left for a crop.

I have frequently shown prize-winning fruits at the leading shows picked from trees upon which the fruits, when ripe, were little more than 6 inches apart. The trees, it is true, were in the best possible condition, the result of generous treatment. The borders, too, were mulched to the thickness of 2 or 3 inches with horse-droppings or well-decayed stable manure, renewed once or twice during the time the fruit was swelling, the food from the manure being washed down to the roots by watering the borders once a week, or less frequently in dull weather. After the substance of the mulch had been well washed out, applications of diluted liquid manure were given. Large-growing varieties of the Peach as Barrington, Princess of Wales, Lady Palmerston, Sea Eagle, and Walburton Admiral should have the fruits thinned to 15 inches apart every way on strong-growing, healthy trees. Nectarines Lord Napier, Dryden, Stanwick Elrune, Newton, Milton, Pineapple, Humboldt and Spenser should be afforded a space of from 9 to 12 inches from fruit to fruit if large specimens are desired. The foregoing remarks apply equally to trees growing against walls out-of-doors and those trained to trellises in glasshouses. *H. W. Ward.*

TWO GOOD NARCISSI.

NARCISSUS TAMERLANE, whose beauty of form is so admirably portrayed in the uppermost flower (fig. 119), belongs to the Incomparabilis group, and is a large and particularly handsome variety. The perianth-segments are of a uniform yellow colour, the cup assuming a distinct tone of orange. The variety will appeal to the exhibitor by reason of its shapeliness, and the breadth of its well-imbricated segments, characteristics which the picture shows well. Tamerlane, which is said to possess a splendid constitution, was raised by Mr. J. C. Williams.

The variety Tita, shown in fig. 120, is best described as a much-glorified *N. Barrii* conspicuous, the colouring of the cup being of a more intense hue, and of a more extensive character than in the older variety. *N. Tita* was raised by Mr. P. D. Williams, by whom it is regarded as a variety of much excellence.

These novelties have been exhibited by Mr. Alex. M. Wilson, Shovell, Bridgwater, Somerset. J.

PLANT-BREEDING METHODS APPLIED TO TREES.*

(Concluded from page 258.)

FURTHER examination of the seedlings of the Huntingdon Elm shows that some have leaves with short petioles, whilst others have leaves with long petioles. This makes eight different kinds of seedlings. Taking into account the other points of difference on the two species, there are possibly 64 different kinds amongst the seedlings of the Huntingdon Elm. Some of the characters will interact with each other; and as a result, there is the possibility of nearly all the known varieties of Elms appearing in the F_2 generation, i.e., amongst the Huntingdon Elm seedlings. At this moment, at Cambridge, there are numerous seedlings of this Elm in the fields and hedgerows, some of which will survive, and constitute, when they grow up, peculiar Elms for botanists to quarrel about, and from which nurserymen could make selections.

Sowings of a considerable number of peculiar Elms, e.g., of a remarkable Elm at Cambridge which has small leaves and minute fruit, of the Jersey Elm, of the trees called Cornish Elm at Kew, &c., &c., all show mixed seedlings, of which I may quote a few examples.

A tree at Colesbourne, supposed to be *U. glabra*, but which differs from the pure species in having larger leaves, differently shaped, and much thicker in texture, when sown, gave 245 opposite-leaved seedlings, and 95 alternate-leaved seedlings. This is quite near the 3:1 ratio, and there is no doubt that this tree is one of the descendants of *U. glabra* × *U. montana*; but as this type of tree is common, we can imagine it to be a descendant from a very early cross, made perhaps hundreds of years ago.

The Jersey Elm—seed, sown from a tree in the Southampton Cemetery, gave only a small number of seedlings, 17 with opposite leaves and 19 with alternate leaves. With small numbers the ratio 3:1 is not observed.

A tree in Huntingdonshire, considered by Rev. Aug. Ley, to be a species indigenous to that county, gave 310 opposite-leaved and 84 alternate-leaved seedlings. In crowded boxes, the ratio is 3:1 not accurately observed.

As regards the fertility of the seed, the two pure species and the Huntingdon Elm are excessively fertile. The other varieties, which I consider to be descendants, are very variable in fertility, as witnessed by the appearance of the boxes, some crowded with seedlings, others with only one seedling or with none. Of the "English Elm," 19 different boxes, of seed gathered at Cambridge, at Kew, in the Isle of Wight, in Gloucestershire, near Exeter, &c., showed not a single seedling. A few seed gathered at Park-

hurst, Isle of Wight, which looked better than any I saw elsewhere, produced one seedling. A tree at Bayfordbury produced two seedlings, which, however, I look upon as doubtful, as they may have come in from seed from an adjoining box. A tree at Cambridge, which is absolutely like the English Elm in all respects, except that it is rather wide-spreading in habit, gave a single seedling like the Parkhurst seedling.

An examination this year shows that the

All the different seedlings reared, about 5,300 in number, each lot of which has a well-known tree for its parent, have been planted out this year in the experimental forestry plot on the University Farm at Cambridge, and if they grow, I have no doubt that we shall see all the possible existing varieties of Elms amongst them.

These experiments seem to show that what are called *varieties* are often simply Mendelian combinations of the characters of two existing species. I may here point out, that where



[Photograph by W. J. Vasey.]

FIG. 119.—NARCISSUS "TAMERLANE": PERIANTH YELLOW; CUP ORANGE-COLOURED.

flowers of some of the "varieties" tend to be malformed; and I have no doubt that in the act of combination of the various characters that make up certain of the F_2 generation, the reproductive organs are badly formed. This is possibly what has occurred in the "English Elm," which no doubt would have soon disappeared, if it had not been a free sucker, and had not also been selected to a considerable extent by human agency, since, owing to its good form and its excellent timber, it is superior to either *U. glabra* or *U. montana*, as a hedge-tree.

there is only one species of tree existing in a country or territory, such varieties are unknown. For example, the Beech, a single species, throughout Europe, has no varieties of the kind so common in Elms. All the varieties of Beech are of another kind, what I may call "*sports*," where we may suppose the variation to be due to some malformation or misdirection of growth in the individual plant. These are as follows:—Variations in colour, as the purple, copper, golden, and variously variegated Beeches; variations in form of the leaf, all

* Abstract of a paper by Dr. A. Henry, read before the Linnean Society, London, April 7, 1910.

more or less bizarre, as var. *heterophylla* (the Fern-leaved Beech), in which the leaves become mere shreds; var. *quercoides*, with deeply pinnate leaves; var. *cristata*, leaves small and crowded in tufts; pendulous, fastigate, and twisted-stem Beeches, in which there is malformation in the habit of the tree. The Beech shows in no way the kind of variation that has arisen in Elms, as it has not had another species with which to make combinations.

In the common Ash (only one species occurring in northern and central Europe) the varieties known are all mere sports, similar to those mentioned for the Beech.

In the case of the Oak, Birch, Lime, in which

the American species, *P. deltoidea*†. There are also the Poplars put on the market by French nurserymen, as *P. Eugenei*, *P. regenerata*, &c.

The American Black Poplar (*P. deltoidea*) was introduced into France about 1700, and arrived in England some years later.

The differences between the two true species are as follows:—

P. nigra (Europe).—Leaf: non-ciliate in margin; without glands at the base; cuneate at the base; long-acuminate at the apex.

P. deltoidea (N. America).—Leaf: densely ciliate in margin; with two glands at the base on the upper surface; truncate at the base; cuspidate at the apex.

tree produces such a volume of timber per year; and its economic importance in France and Belgium, and even in England, is extreme.

It is characterised as follows:—

P. nigra × *deltoidea* (*P. serotina*), First cross. Leaf with a few cilia irregularly disposed on the margin; glands at the base variable, 0, 1, or 2 on each leaf; in shape like *P. deltoidea*, but appreciably different.

Some time after the first cross was obtained, further crossing occurred from time to time, and we now have at least two forms of a female tree, which differs not only from *P. serotina*, but also from *P. deltoidea*; and these are comparatively valueless, as they grow slowly, and differ in habit from the Black Italian Poplar. I need not pursue the history of these Poplars further; but *P. Eugenei*, *P. regenerata*, &c., are all later products.

So far as I can judge, but my investigations are not yet finished, the Cricket-bat Willow, known only as a female tree, originated in Norfolk about 1700 as a first cross between *Salix alba* and *S. fragilis*—but, like most first crosses, it resembles one parent much more strongly than the other. It is, in fact, so close to *S. alba* in its botanical characters that it is universally considered to be a variety of that, viz., *S. alba cœrulea*. If it were a variety simply, e.g., a geographical race, how is its occurrence in one sex only to be explained? The economic importance of this tree, which grows twice as fast as *S. alba*, is very considerable.

The history of the Lucombe Oak is very enlightening, as Loudon obtained accurate particulars of it, and we are in no doubt as to the facts. The Lucombe Oak was raised at Exeter in 1763 from an acorn of a Turkey Oak (*Q. Cerris*) which had been pollinated by a Cork Oak (*Q. Suber*) growing near it. This seedling turned out to be subevergreen, and made astonishingly rapid growth; and on this account Lucombe propagated a large number of trees by grafts from it. In its characters, this first cross resembles *Q. Cerris* in the form of the leaves and in the persistent stipules round the buds, but has the mucronate points to the serrations, which are characteristic of *Q. Suber*. One of its parents is deciduous, the other is evergreen, it is subevergreen, the leaves falling in January and February.

In 1792 the acorns of the Lucombe Oak were sown, and a crowd of forms appeared in the seedlings, some of which were preserved, but none equalled in vigour the parent tree. Some of the seedlings are very close to *Q. Suber* in bark and are nearly evergreen, keeping the leaves on till May.

Here, again, we notice the extreme vigour of the first cross, and the disintegration, so to speak, of the first cross into numerous forms, so soon as its seed is sown. The facts about the Lucombe Oak are strictly parallel to what is going on in the Elms.

The practical corollary to all these observations seems to me evident. We have instances in the Black Italian Poplar, in the Huntingdon Elm, in the Lucombe Oak, probably in the Cricket-bat Willow, of vigorous first crosses that were produced accidentally, and which are timber trees of considerable value. Why not then proceed to make artificially first crosses in other trees, with still more valuable timber? In the Ash and Walnut, the quality of the wood, owing to its structure, will be improved the faster the tree grows; and both these trees produce already extremely valuable timber. First crosses, of course, can only be reproduced by cuttings or by grafting, and considerable difficulty may be anticipated in adapting on a large scale these modes of reproduction to forest trees. But our resources are not exhausted, as there is no telling but that amongst the crowd of different combinations that appear in the F_2 generation, there may exist one

† De Vries, in *Plant-Breeding*, 174, fig. 37 (1907) describes a remarkable first-cross Walnut which he saw in California. The particulars, which he gives about its fastness of growth, are so astounding as to seem incredible. I have no doubt, however, of the correctness of his observation.



FIG. 120.—NARCISSUS "TITA," AN IMPROVED "BARRII CONSPICUUS."

there are two species existing in the same region, the variations are like those in the Elm. In southern Europe, where the number of species of Oak increases, the number of varieties increases likewise, to an alarming extent, as no less than 35 varieties are described of *Q. Ilex*, which is so often associated with *Q. Suber*.

These investigations have also served to guide me to a correct appreciation of the Poplars, which have been so long a puzzle to systematists. I may here advert to the Black Poplars. We have in cultivation in this country *Populus nigra*, the European Black Poplar; *Populus serotina*, Hartig, the Black Italian Poplar, always a male tree; and a number of female trees, which, like the last, are generally supposed to be forms of

Soon after the American species was introduced in the 18th century into France, a first cross accidentally arose, which became known in France as *P. nigra helvetica* or "Peuplier suisse," and when imported into England was called the Black Italian Poplar. Arising as a single tree (which has been always reproduced by cuttings) it happened to be a male. Selected at once, on account of its astounding vigour, characteristic of first crosses in trees, it is amply distinct from either of the parents, not only by its rapid growth, but by its habit—slender ascending branches and straight cylindrical stem. Scarcely any other

† I exclude from consideration here *P. angulata*, another American species, occasionally met with in England, very distinct and easily recognizable.

which will display great vigour and yet breed true. This is the next step to explore.

In countries like our own, the only hope of salvation for forestry is in growing timber rapidly, and we have been helped in that by the introduction of fast-growing trees like the Larch, the Corsican Pine, and the Douglas Fir. But it is essential to grow the more valuable classes of non-coniferous timber; and I see no reason why the attempt should not now be made to essay experiments on the lines laid down in this paper. Some experiments are being made in cross-fertilisation this year; but more workers are required in this field. Hitherto nothing whatever has been done to improve the breed of forest trees; and foresters have never even thought of the possibilities in this direction, though gardeners and farmers have shown the way for centuries.

The Week's Work.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman,
Royal Gardens, Windsor.

Leeks.—The earliest Leeks should now be ready for planting in trenches. It is easy enough to grow them to a very large size, if there is plenty of rotted farmyard manure available for use. The trenches should be at least 2 feet apart and 18 inches deep, and into these trenches a liberal quantity of rotted manure should be dug. In transplanting the young plants, take care to retain as many of the roots unbroken as possible. As growth advances, draw the soil well round the stem of the plants in order to exclude light. Some growers use paper collars for the purpose, and this method is doubtless the best for securing Leeks that are extra well-blanchied. As the season advances the plants should be given a liberal supply of weak liquid manure as often as the state of the soil permits.

Celery.—Prepare trenches for the earliest Celery, selecting ground which has been occupied recently with green crops. If only a small quantity of Celery is cultivated, the plants may be put in single trenches, but, if large quantities are necessary, the trenches may be made sufficiently wide to accommodate each two or three rows of plants. For ordinary purposes really good Celery may be grown by this latter method, provided that plenty of good manure is available. The trenches should be at least 15 inches deep, and, in the process of forking the manure into the bottom of the trench, the soil should be thoroughly broken up with the fork, so that when the plants are ready to be put out, the beds are in a fit condition for them. Get ready as many trenches as possible at the present time in order that advantage may be taken of dull, moist days for planting out the crop. At Windsor, we grow some 50,000 Celery plants each year, and most of them are cultivated in trenches containing three rows each.

Beetroot.—Make the earliest sowing of Beetroot in the first week of May. It is a mistake to sow this crop earlier, as the roots grow to such a large size that they are scarcely fit for use. Select rich soil in order that the growth of the roots may be quick and unchecked. Sow the seeds in drills 18 inches apart and 2 inches deep. The young plants may be thinned to 9 inches apart, keeping the crop free from weeds until the month of October, when the roots will be fit for lifting and storing.

Carrots and Parsnips.—As soon as the young plants are well above the ground, the Dutch hoe should be freely used between the rows to keep the land free from weeds. Early Horn Carrots need not be thinned so severely, as they are intended to be used when small: a distance of 3 inches between the plants will be sufficient. But for the main crop of Carrots, at least 6 inches should be allowed between them, and if extra fine roots are desired, they may be allowed 10 inches. As soon as the thinning is finished, the bed may receive frequent dustings of soot on dull days. This will increase the vigour of the plants and keep the Carrot fly in check. Parsnips may be thinned to 10 inches apart when the young plants are large enough to handle. Where sown in patches, the plants may be thinned to one at each bunch. If, through any failure, the crop is thin, it is better to make another sowing in the blank spaces than to attempt to fill them by transplanting.

Chicory.—Chicory may be sown at the same time as Beet, in drills 15 inches apart and 1 inch deep. Thin the young plants to distances of 8 inches apart.

Potatos.—Complete the planting of late Potatos. The earliest plantations out-of-doors will require attention in case of frost occurring. A quantity of covering material should be kept in readiness, and the soil should be drawn up to the stems of the plants. No overhead covering must be allowed during the day, even though its removal involves a little extra labour.

Salads.—Make fortnightly sowings of Radishes in rich soil, and apply liberal supplies of water to the crops. If these are sown outside, the beds may be covered with straw until the plants are well above the ground, but the best results, at any rate for the present, can only be obtained under glass. Mustard and Cress may be sown behind a north wall, and covered with mats until growth commences. Watercress may be grown in ordinary garden soil in a shady situation where liberal supplies of water can be given. Seeds may be sown at the present time, and the seedlings thinned to 4 inches apart, or cuttings may be inserted 6 inches apart.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Westwood, Yorkshire.

Lapageria.—A suitable border for Lapagerias is one consisting of good fibrous loam, charcoal broken into lumps of medium size, peat and silver sand. In the case of established plants which have partially exhausted the soil of its plant food, it is desirable to apply an occasional top-dressing of dry, cow manure which has been passed through a fine-meshed sieve. Applications of some approved chemical fertiliser are also beneficial. At this season, Lapagerias are making very quick growth, and it is necessary that the shoots should be trained into position before they become entangled one with another. The plants seldom succeed unless the border or pot is freely drained and frequent supplies of water are afforded the roots.

Cineraria.—The stellata type of Cinerarias is most useful for decorative purposes. Seeds may now be sown to raise the earliest plants. Select clean pans and provide these with good drainage, then fill them with a compost of leafmould, sand and fine loam. Make the soil moderately firm and the surface smooth and apply a thorough watering before sowing the seed. Scatter the seeds thinly over the surface, distributing them as evenly as possible, and covering them very shallowly. Pieces of glass should be placed over the pans and also sheets of paper or damp moss. As soon as germination has taken place, the seedlings will need to be gradually accustomed to the light, but they must be shaded from the sunshine at all times. The best place for the plants during summer is a cool frame or pit with a north aspect. Prepare a base of ashes for the pots to stand upon. As the seedlings become large enough they should be potted off singly, and not allowed to become root-bound or to suffer from drought.

Ouvirandra fenestralis.—The Lace-leaf or Lattice-leaf plant is mainly cultivated for the interesting appearance of its leaves. It may be raised either from seed or division of the roots, and the plants succeed best when they are totally immersed in a tank of water so that the leaves float near the surface. The roots should be placed in teakwood baskets containing a compost of peat and fibrous loam, from which the fine particles are removed. The water needs to be kept at a uniform temperature of 80°. Some fresh water should be placed into the water tank or tubs each day, but it should be warmed first to the temperature of that already in the tanks.

Nicotiana Sanderae.—Sow seeds of this plant now for raising a batch to flower in the conservatory during the autumn. The seedlings should be treated as recommended for Cineraria.

Perpetual-flowering Carnations.—Old stock plants which have been flowering throughout the winter and spring may now be removed from the flowering houses, where the space will be required for the Souvenir de la Malmaison varieties. The plants may be placed in a cool frame or any available shelter, and gradually hardened until they are ready for planting in the open. The shoots may be made secure by looping them to a strong stake, or, if planted in rows across

the kitchen garden, wire in a manner like that adopted for Chrysanthemums. Tree Carnations will produce an abundance of blooms during the latter part of the summer.

Chrysanthemum.—The plants must be re-potted as required. During favourable weather the frames should be opened to afford an abundance of ventilation. Some of the plants are ready for placing in 6-inch pots. The compost should consist of the best loam, which need not be broken up too finely, adding a quantity of broken lumps of charcoal, lime rubble, and coarse silver-sand. Leaf-mould may be dispensed with, and the plants potted more firmly than previously. Keep a sharp look-out for aphids, which is generally very troublesome at this stage.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL,
G.C.B., Moulton Paddocks, Newmarket.

Vines in pots.—Pot vines, now ripening their fruits, will require more ventilation. Maintain a circulation of warm, rather dry air, and leave the top ventilator open a little during the night. If the atmosphere is allowed to become too dry it will be sure to result in an attack of red spider, in which case the leaves must be sponged with tepid water in which a little soft soap has been dissolved. Apply water carefully to the roots and discontinue the use of manures.

The earliest permanent vines.—These vines, which have had the berries thinned, will need occasional applications of liquid manure from the farmyard, and preferably from the cow byres, such liquid being better than artificial manures. Dilute the liquid manure with warm water until it is of the required strength, and let it be brought to the temperature of the house before it is applied to the roots. Soot is also an excellent stimulant for vines. The plants are now making rapid growth, and the borders, therefore, should be examined each week, applying water or liquid manure as may be necessary. Pinch all sub-laterals to one leaf, and do not neglect doing this at the proper time and before the shoots acquire much length.

Successional vines.—Close the house early in the afternoon in order to make use of the sunshine. Mildew is frequently very troublesome at this season of the year. The most effectual remedy is the use of a sulphur vaporiser. It should be employed as soon as the mildew is detected, as the disease is apt to spread over the whole house in a very short time. It should be remembered, however, that the vaporiser may not be employed for vines whilst they are in flower. Any plants which have been previously attacked by mildew may be vaporised slightly twice or three times during the season, as a preventive.

Tomatos.—Let any plants which are carrying heavy crops be given an occasional top-dressing, with some good fertiliser, applying a little fresh compost at the same time. Remove all the lateral growths as they appear. The atmospheric temperature may range from 55° to 60° at night, and 65° to 68° by day. Let the atmosphere be kept dry and buoyant. Any odd corners or vacant space on the trellises of Peach houses may be utilised for Tomato plants, which may be expected to produce good crops, provided they are exposed to sufficient light and air. The main batch of spring-sown plants are now in their fruiting pots, where they should be kept rather dry at the root until they have become well established.

Melons.—When the fruit has attained to a fair size, some support will be necessary. The nets which are to be purchased for the purpose are excellent. Stop all laterals at one leaf. Maintain a temperature of 70° to 75° at night-time, with a rise of 10° by day, and a further rise of 10° or 15° by sun-heat. Afford ventilation whenever the weather is favourable, but always do so in the early part of the day, closing the house, with plenty of moisture in the atmosphere, about 2 p.m. Syringing may now be discontinued, but provide plenty of atmospheric moisture by damping the paths, etc., several times daily. The plants will require liberal supplies of moisture at the root, and will benefit by frequent applications of manure water. Give light top-dressings of loam and manure whenever the roots appear on the surface. When the fruits show signs of ripening, gradually reduce the supply of water both at the root and in the atmosphere, giving more fresh air as the fruit changes colour.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Strawberry beds.—In some districts the plants will soon commence to develop their flower trusses, therefore it is quite time to get the beds ready for the annual mulch of straw or stable litter, which is used to prevent the fruits from being splashed with mud during heavy rains. Employ the dutch hoe frequently during favourable weather in order to destroy weeds. When the beds have been thoroughly cleansed, apply a dusting of soot or fresh quicklime as a preventive of slugs. Following this, the mulch may be loosely placed around the plants and over the beds. Clean litter from the stable is as good material as any, and since it is not so stiff as straw, it is more easily arranged around each plant. Should the litter be stained, the rains will cleanse it before the Strawberry fruits commence to ripen. If the mulch is applied early, it will not only serve to prevent excessive evaporation from the soil, but it will also afford the flowers some protection from frosts. As soon as the mulch is completed the necessary supports for the nets should be fixed in position. In these gardens we use stout wooden piles driven in by a beetle or crowbar at the required distances apart; these piles are left about 4 feet in height, and long, slanting batons $2\frac{1}{2}$ inches wide by 1 inch thick are nailed on to them. By these means the nets are kept a convenient distance from the plants, and the fruits may be gathered with ease without removing the nets. The nets are placed over the plants directly the first flowers open, as they offer some protection against frost. If extra large fruits are required for exhibition or other purposes, the flower trusses should be thinned by removing the weakest; afterwards, when the fruits are set, these, too, should be thinned out, and the plants assisted with frequent waterings with diluted manure from the farmyard.

Peach blister.—This fungus disease (*Exoascus deformans*) generally attacks the leaves, and often the points of young shoots of Peach and Nectarine in the spring of the year. It is most prevalent when cold, east winds are followed by warm days, and preventive measures should include some means of protecting the trees from such cold winds. Any infested shoots should be removed, and burned without delay; if this is done perseveringly, the trees may be expected to make healthy growth when the weather has become consistently warmer.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Odontoglossum.—There are plants of *Odontoglossum*, especially *O. crispum* and its hybrids, which, being weak or extra free in flowering, were relieved of their spikes early in the year. These plants are starting into growth, and any repotting they may require should be carried out at once. Healthy plants which were last potted in good *Osmunda* and *Polypodium* fibres, will need but little disturbance as far as their roots are concerned, merely turning them out of their pots, cutting away any leafless and worn-out pseudo-bulbs and pulling off as much of the soil at the back of the plant as is practicable in order that as many of the plants as possible may be put into pots of the size they formerly occupied. *Odontoglossum* seedlings may also be potted on as they require it. All repotted plants should be placed together in a house and be afforded extra shade. The back pseudo-bulbs of rare varieties may be fixed firmly in well-drained pans of moss, and suspended near to the roof. Such dwarf-growing plants as *Odontoglossum* *Rossii*, *O. Cervantesii*, *O. Oerstedii*, and the pretty *Oncidium olivaceum*, as they go out of flower, should be kept only moderately moist at the root, and be allowed to rest as long as possible.

Anguloa.—In the cool intermediate house the *Anguloas* are now producing their flower-spikes and young growths. Place them well in the shade and afford water in sufficient quantities to keep the compost moist. *A. Clowesii*, *A. eburnea*, *A. uniflora*, and *A. Ruckeri* are very handsome Orchids, and the flowers of the golden-yellow *A. Clowesii* are fragrant. Do not repot these plants until the flowers have faded. In watering or spraying, do not allow water to lodge

in the growths. *Anguloas* root freely in a well-drained mixture of fibrous loam, *Osmunda* fibre, and *Sphagnum*-moss in equal parts, the *Osmunda* and moss should be cut up moderately fine and mixed thoroughly with the loam. Sponge the large leaves occasionally to keep them free from scale and red spider.

***Calogyne cristata* and others.**—If plants of *C. cristata* and the variety of *lemoniana* and the pure-white variety *alba* (*hololeuca*) have grown too large they may be safely divided and repotted, using for the purpose the same mixture as advised for the *Anguloas*. If plants of moderate size are to be grown into large specimens, they also may be repotted, but their roots should not be disturbed unnecessarily. After potting the divided plants, the pseudo-bulbs will probably shrivel a little, but the plants should not be saturated with water to preserve their plumpness, it being better practice to lightly spray them overhead occasionally, and to shade them from sunshine. Plants which do not need repotting will require a gradual increase of water at the root. Some of the principal species of *Calogyne* include *C. flaccida*, *C. conferta*, *C. elata*, *C. speciosa*, *C. Lawrenceana*, *C. Micholitzii*, *C. Sanderæ*, *C. Swainiana*, *C. corrugata*, *C. corymbosa* and *C. graminifolia*, which require an intermediate temperature, and may now be repotted. Such plants as *C. Dayana*, *C. flaccida*, *C. Massangeana* and *C. tomentosa*, which produce pendulous racemes, are best potted in baskets or shallow pans and suspended to the roof; *C. Dayana*, *C. ochracea*, *C. asperata* *Lowii* and others which are showing for flower will require more water at the root. *C. Massangeana*, *C. tomentosa*, and *C. pandurata* require warmer treatment, and should be placed in a shady position in the East Indian house. The rare *C. Sanderiana* should be kept well on the dry side till the growths are several inches in length, when, if no flower-spikes appear, the plant should be afforded more liberal treatment.

***Cattleya Lawrenceana*.**—This species is now in flower, and should be kept in a dry position. When the blooms have faded, reduce the amount of water at the roots, affording sufficient only to prevent excessive shrivelling of the pseudo-bulbs. This *Cattleya*, whilst at rest, prefers a warm, light position; if placed where the atmosphere is very damp, the leaves and bulbs quickly decay.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Sub-tropical plants.—The best position for a sub-tropical garden is one facing south or south-west, where there is shelter from the prevailing winds. The ground should be trenched, or dug deeply some time before planting has to be done, and a good dressing of half-decayed farmyard manure mixed with the soil during the tilling operations. In cases where the soil is of a retentive nature, much benefit may be obtained by applying a surface dressing of finely-sifted old mortar rubble. Sub-tropical plants should not be placed in the open until the first week of June, except in the most favoured localities. From the present time until June every means should be taken to induce the plants to make free growth, in order that they may attain to sufficient size to produce a good effect directly they are planted in the beds. Amongst the most effective species are the many beautiful varieties of *Ricinus*; the seedling plants should be potted into 6-inch or 7-inch pots and cultivated in a moderate heat until the middle of May, when they should be removed to cooler quarters. *Melanthus major* is useful for a mixed border or for massing in beds. This species may either be treated as an annual, or kept from year to year, in the same way as *Dahlias*. Seedlings produce the finest foliage, but older plants usually flower and seed more freely. In either case the plants should be potted on and grown in gentle heat. No one can afford to do without the beautiful *Cannas*, which may now be obtained in such attractive varieties. Old stools, which were saved last autumn, may be divided and potted up. If they are cultivated in a warm house or frame they will make excellent plants before they are required for putting out. Some of the *Solanums* are desirable plants for sub-tropical gardening, such, for instance, as *S. pyracantha*, *S. robustum*

and *S. marginatum*. Pot the plants into 5-inch or 6-inch pots and place them in a heated pit or house, keeping them near to the glass. *Cannabis gigantea*, or the Giant Hemp, frequently attains a height of 15 feet in one season. Seed should not be sown before the last week in April, or even the first week in May, and the plants should never be allowed to suffer from impoverishment of the roots. There are many other subjects of a less tender nature which lend themselves for this form of gardening, and in a mixed border or bed it is desirable to include as much variety as possible.

Annuals.—The seeds of the more tender annuals may now be sown in the open ground, and a second batch of many of those which were sown at an earlier date should be made in various parts of the garden so that the period of flowering may be prolonged. It is always necessary to remind the cultivator that not only should seeds of annuals be sown thinly, but that seedlings must be afterwards thinned sufficiently to allow each plant to develop perfectly. More failures are due to overcrowding than to any other cause.

Mignonette.—It is desirable to produce flowers of this sweetly-scented plant for as long a period each year as possible, and care should be taken to cultivate the plants to their very best condition. Three points therefore should be observed: cultivate only the very best varieties, let the ground be dug deeply and enriched with good manure, adding a plentiful supply of finely-broken mortar-rubble, and thin out the plants until they are 4 to 6 inches apart. Two of the best varieties, when they are true, are the Matchet and Miles Spiral. At least three sowings ought to be made from this date onwards, on a south or south-west border.

THE APIARY.

By CHLORIS.

Purchasing bees.—This is a good time to purchase bees in skeps, with a view to transferring them to bar frame hives, because there is very little honey in the combs, and, consequently, there is less liability of them breaking when being carried. Unless the vendor is known to the purchaser, it will be decidedly advantageous to have the colony examined by a beekeeper who can detect disease and also assess its value. It is very unwise for a novice to purchase bees without advice, and especially should the beginner be careful when a great bargain of bees, hives and smoker are offered at a ridiculously low figure, unless a written guarantee is given showing that the bees are free from disease.

How to move bees.—It is not wise to purchase bees nearer the buyer's home than two miles. If bees are moved a less distance, there is always a danger of them returning to the old locality. The bees to be moved should be smoked after their day's work is completed, and, about two minutes after smoking them, overturn the skep, giving another puff as soon as the hive is upside-down, to drive down the bees. This last puff is of great importance, and is sometimes omitted by the beginner. Over the mouth of the skep tie securely a piece of cheese-cloth, and carry it home with the bottom of the skep uppermost, to prevent the bees being smothered. On arriving home, give the bees a puff of smoke, and place the skep containing bees and comb in a bucket on a box or table. Fix an empty skep over this to receive the bees as they run up the side. The full hive is rapped on each side with the palms of the hands. All the bees will have deserted the lower skep in about half an hour, sometimes in 10 minutes. Gently cut out the combs, placing them on a layer of soft cloth or several thicknesses of calico, so that the brood may not be injured in the cells. Cut the combs so that they will just fit the frames, and fix them by tying to the top bar with two strips of tape. Care must be taken to make the top of the comb touch the under-side of the top bar, for if a large space is left, the bees will not seal the comb in the frame. When all the good combs have been fixed in the manner indicated, the bees can be thrown down in front of the entrance, and they will readily take possession. This operation should be performed when the weather is warm, or the brood will be chilled, and perish. In any case, there should be no time wasted in the performance of the work.

APPOINTMENTS FOR MAY.

MONDAY, MAY 2—Royal Academy opens.

TUESDAY, MAY 3—
Roy. Hort. Soc. Coms. meet. and Nat. Auricula and Primula Soc.'s combined Sh. at R.H.S. Hall. (Lecture at 3 p.m. by Dr. A. Henry on "Future Forest Trees.") Scottish Hort. Assoc. meet. Brit. Gard. Assoc. Ex. Council meet.

WEDNESDAY, MAY 4—
Nat. Auricula Soc. (Midland Sh.), in Birmingham Bot. Gdns. (2 days). Haarlem International Exhibition (9 days).

THURSDAY, MAY 5—Linnean Soc. meet.

SATURDAY, MAY 7—
Soc. Franç. d'Hort. de Londres meet.

MONDAY, MAY 9—
Surveyors' Inst. meet. United Hort. Ben. & Prov. Soc. Com. meet.

FRIDAY, MAY 13—Devon County Sh. at Exmouth (3 days).

MONDAY, MAY 16—*Whit Monday*. Bank Holiday.

TUESDAY, MAY 17—
Roy. Hort. Soc. Coms. meet. Tulip Show. (Lecture at 3 p.m. by Rev. J. Jacob on "The Tulip—Problems and History.")

THURSDAY, MAY 19—
Perpetual-flowering Carnation Soc. Sh. at R.H.S. Hall, Westminster.

TUESDAY, MAY 24—
Roy. Hort. Soc. Sh. in Temple Gardens, Thames Embankment (3 days). Bath and West and Southern Counties Sh. at Rochester and Chatham (5 days). Anniversary meet. of Linnean Soc.

WEDNESDAY, MAY 25—
Ann. Meet. British Gard. Assoc., at Essex Hall, Strand, at 7 p.m.

THURSDAY, MAY 26—
Haarlem International Exhibition (4 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—50°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, April 27 (6 P.M.): Max. 56°; Min. 35°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 28 (10 A.M.): Bar. 29.9; Temp. 59°; Weather—Sunshine.

PROVINCES.—Wednesday, April 27; Max. 62° Cornwall; Min. 49° Scotland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Perennials, Liliiums, and Hardy Bulbs, at 12; Palms, Plants, Ferns, at 8; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Choice Orchids from the "Rosslyn" Collection; Imported and Established Orchids in variety; at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

In the death of Baron Schröder, on the 24th inst., at the advanced age of 86 years, practical gardening loses a most liberal patron, whose personal interest, particularly in Orchid culture, has shown itself in a variety of ways, and over a great number of years. His gardens at the Dell have long been famous for their collection of Orchids, for Baron Schröder was a keen collector and a most enthusiastic cultivator. In the earlier days of Orchid importation, he was one of the few whose liberal encouragement helped greatly to popularise these plants in this country, and later, when cultivators at home commenced to cross the species and raise hybrids from them, Baron Schröder purchased one novelty after another to add to his collection. His exhibits at the Temple Shows in the 'nineties are still remembered for their great interest and beauty, and, at that time, there were very few amateurs who could furnish such displays.

It is not, however, solely as a collector that Baron Schröder's memory will be cherished but rather as a public-spirited friend and generous supporter of all horticultural interests. His business-like mind was quick to recognise that, in the Royal Horticultural Society, there was an institution that might be made a potent agency for forwarding horti-

cultural interests in this country. From the very first he assisted the Society by counsel, by contributing to its shows, and by munificent donations to attain to a position of strength, influence and repute.

Baron Schröder first joined the Council in 1886. The Society had recently experienced trying and humiliating circumstances, and its prestige and strength were at the lowest. The memory of South Kensington was fresh in the minds of Fellows and the public, and the only favourable omen was the fact that those responsible for the destinies of the Society, including the present President, Sir Trevor Lawrence, were able to realise that a change of policy was essential, and had the determination to carry out their views.

Offices were acquired in Victoria Street, Westminster, in 1888, and the Drill Hall of the London Scottish Volunteers was rented for holding the fortnightly shows. So things went on for a period of years, during which time everything possible was done to promote economy and restore the Society to a position of independence. Two other names may be mentioned in connection with those difficult times, namely, Sir Daniel Morris and the Rev. W. Wilks, the present Secretary, for both these gentlemen worked hard and accomplished excellent results. Baron Schröder remained a member of the Council for seven years, and retired in 1893.

Towards the close of the century the Society again found itself in favourable circumstances, and efforts were made to devise some appropriate means of celebrating in 1904 the centenary of its establishment. Readers will remember that at first there was a lack of unanimity with respect to the best means of doing this. Some favoured a scheme for purchasing a new garden in place of Chiswick, which had become unsuitable for the purposes of the Society, and others held the opinion that the more pressing need was that of an Exhibition Hall and Offices, which would provide the Society with a home of its own. At first it appeared that the garden scheme would be adopted, and several sites were inspected and schemes submitted to the Fellows. But there was strong opposition to all these propositions, and, during 1900 and 1901, when several sites for a garden were under consideration, Baron Schröder remained one of the most consistent advocates of the opposite policy. Happily, the gift of the Wisley gardens by the late Sir Thomas Hanbury provided the Society with a garden, and enabled it to satisfy both requirements almost simultaneously.

It was after the rejection of the Rabbits Farm site at South Darenth, at a meeting on April 23, 1901, that serious efforts were made to press forward the scheme for the provision of a Hall. At that meeting various sums were promised if the Hall scheme were adopted, and eventually a committee was appointed to obtain a site. It was in that year that Baron Schröder was elected a Vice-President of the Society, and in the following year, 1902, he became again a member of the Council, which position he resigned in 1905.

On March 21, 1902, a general meeting of Fellows was called to consider a report from the Sites Committee in favour of the site in Vincent Square, now occupied by the Hall. This site had been found by Baron Schröder,

and his opinion of its worth was shown by his promise of £5,000, provided the Society adopted the scheme. Subsequently, when the scheme was in operation, Baron Schröder became chairman of the Appeal Committee. It is perfectly true, therefore, as Mr. Wilks states in a letter, which we print in another column, that Baron Schröder was the "Father of the Hall," and indeed, at one time, it seemed probable that it would be known by his name. Many of our readers will remember that, on the completion of the Hall, the late Dr. Masters, as Chairman of the Lindley Library Trustees, made frequent appeals for funds to permit of the arrangement of the books in the rooms which the Society had set apart for their accommodation. Eventually the room was provided with all the necessary fittings, at a cost of nearly £1,000, the whole of which amount was paid by Baron Schröder.

The Gardening Charities received his sympathetic attention and, in 1893, he occupied the position of Chairman at the Festival Dinner of the Gardeners' Royal Benevolent Institution.

Baron John Henry William Schröder was created a baronet in 1883, but he always preferred to be known as "Baron Schröder." The Baroness predeceased him in 1900, and there is no issue. The interment took place at the cemetery, Englefield Green, on Tuesday last, and the ceremony was attended by the President of the Royal Horticultural Society and other representatives of horticulture.

Of the tributes to the late Baron which have reached us we print the following appreciations from Sir Trevor Lawrence and the Rev. W. Wilks.

"In addition to Baron Schröder's love of gardens and gardening, his appreciation of the beautiful developed itself in many directions. His fine collection of Tudor plate, of the best modern pictures, both of the Continental and of the British schools, of jewelled and enamelled snuff-boxes, of Sèvres porcelain and of Chinese enamels were well known. Many years ago he gave financial help to the late Mr. W. Boore, of the Strand, the well-known dealer, to enable him to buy the Esterhazy jewels for other purposes, Mr. Boore being a man of fine taste and ample knowledge, and one whom Baron Schröder knew he could trust implicitly both for honest dealing and unimpeachable taste. No doubt he was in many cases guided by Mr. Boore's advice. Again, the Baron was thoroughly English in his love of sport. For many years he was well known as a rider to hounds, as a four-in-hand whip, and as a fine shot, both in the great forest he rented in Scotland and in the more ordinary grouse, partridge, and pheasant shootings.

"The Dell was an ideal house to visit, the lovely garden, the beautiful contents of the house, and, most of all, the charming hospitality of the Baron and Baroness, were a combination sure to leave a lasting impression on every guest. It may not be generally known that her late Majesty Queen Victoria had a warm regard for Baron Schröder, her near neighbour; and no wonder, for the Baron was a delightful friend in every way, with a delicate appreciation of what would be acceptable, a pleasant humour, and an unfailing

tact and courtesy, with, perhaps, a faint old-world flavour. Moreover, he was generous to a fault. When asked to help the rebuilding of St. Bartholomew's Hospital he responded at once with a cheque for £1,000, and he was a most liberal supporter of all German and many British charities. In Baron Schröder there was a combination of qualities rarely to be met with. His friends will have but one feeling—that their loss is irremediable." *Trevor Lawrence.*

"I first had the privilege of making the Baron's acquaintance about the middle of the year 1887, when the R.H.S. was in the utmost throes of its difficulties, and from that day to this I can testify that he has been an unfailing friend and helper to the Society, not only in financial matters but in affording advice and counsel in all emergencies; unsparing, too, in the devotion of his time and energy to the welfare of the Society. Through all the years of patient building up of the Society after 1887, Baron Schröder was constant in attendance at the meetings of the Council, which, in those days were neither few nor far between. He was always urging advance—improvements—and at times could only, with difficulty, bring himself to consent to the necessary slowness of development, although he admitted the wisdom of it.

"He was very eager for the Society to have a home of its own, and just before the great Baring crisis in the city in 1890, he was within an ace of signing an agreement with the Corporation of London for a 99 years lease of a plot of ground to build the Society a Hall on the Embankment, between the Temple and Blackfriars. Fortunately, as it has turned out, the financial crisis put a stop to this proposal, but the Baron had worked very hard at it, and overcame every obstacle until this unforeseen one came along. No sooner, however, had the chief strain of the crisis passed away than the Baron was eager as a horse champing at its bit to be on the warpath again. That the Society must have a home of its own was ever his constant theme, and at last, when the celebration of the Centenary of the Society drew near, he was more than ever determined to carry his ideas into completion. But still there were difficulties, not only within the Council but without. There were strenuous advocates of a 'Garden' as a Centenary celebration instead of a hall. But the Baron never despaired, and finally solved the difficulty, which was chiefly financial, by himself putting down £5,000 towards the Hall, and also discovering the present site. For 20 years he had espoused the cause of 'a home of our own,' and at last saw the magnificent completion of what he had so long and patiently fought for, but fought for always with the most admirable courtesy towards his opponents and appreciation of their position. Though a host of other friends assisted, still Baron Schröder was in a most true sense 'The father of the Hall.'" *W. Wilks.*

MEMORIAL TO BARON SCHRÖDER.—Instead of sending to Baron Schröder's funeral a wreath of flowers, which would fade in a day, the secretary of the Royal Horticultural Society will advise the Council to establish a pensionership of £20 a year for five years under the regulations of the Gardeners' Royal Benevolent Institution, "In Memory of Baron Schröder."

BARON SCHRÖDER AS AN ORCHID GROWER.—It may be said that *Odontoglossums* were always his first favourites; he had a splendid collection of blotched forms of *O. crispum*. The appreciation for these spotted forms was materially assisted by the Baron's purchase of *O. crispum* apiatum at a record price. It secured a first-class certificate in 1886, an honour which had before fallen to the varieties *Ballantinei*, *delense*, and *Veitchiana*. Following from the Dell collection in succession were other first-class varieties of *O. crispum*, namely, *Sanderianum* and *Schröderianum* (1885), and later *Wolstenholmie*, *Truffantianum*, *Rex*, *grande maculatum*, *Princess Christian*, *Princess of Wales*, and many others. The two finest blotched forms of *O. Pescatorei*, namely, *Schröderianum* and *Veitchii*, are now in the Dell collection, *Veitchii* having been there since 1882.

Among hybrid *Odontoglossums* at the Dell are many fine forms of *O. Wilckeanum*; the original secured a first-class certificate in 1885, and the latest, *O. W. Schröderianum*, in 1908. The handsome *O. John Clarke* and other hybrids first appeared in the late Baron's garden.

He was a keen judge of a good plant, and never submitted one to the Orchard Committee for an award unless he judged it to be worthy of that distinction. The results proved the correctness of his opinion, for nearly all his awards consisted of first-class certificates. The enumeration of a few will serve to show the wide range represented in the collection, some of the oldest being now as rare as when first shown:—*Aërides Fieldingi* album (1888); *Cattleya Lawrenceana* (1886), the finest white *Cattleya Mossiae* *Wagneri* *superba* (1888), *Vanda insignis Schröderiana* (1883), *Miltonia Schröderiana* (1887), *Lælia anceps Schröderiana* (1890), and *L. Perrinii* alba. A striking example is *Cattleya Lamberhurst* hybrid (*citrina* × *intermedia*) (*F. C. C.*, 1888). The death of this plant after its first flowering was predicted on account of its dissimilar parentage, but Mr. Ballantine, who has been gardener to the Baron for so many years, showed it again quite recently. Some of the best forms of *Miltonia vexillaria* are credited to the Dell collection, and in *Lælio-Cattleyas* most of the earlier forms were first shown by Baron Schröder—*L.-C. triophthalma* (1884), *L.-C. Sedenii* and *L.-C. bella*, followed by *L.-C. Amesiana*, *L.-C. Victoria*, *L.-C. Bletchleyensis* *Ruby King*, *L.-C. callistoglossa* (1884), and many others. A few good hybrids emanated from the Dell, the most satisfactory being the fine *Calanthe* Baron Schröder, and the hybrid from this and *Phaius Wallichii*, named *Phaio-Calanthe Schröderiana*, which secured a first-class certificate early this year. *James O'Brien.*

ROYAL HORTICULTURAL SOCIETY. The next meeting of the Committees will take place on Tuesday, 3rd prox., in the Society's Hall, Vincent Square, Westminster. In the afternoon a lecture, entitled "Future Forest Trees," will be delivered by Dr. A. HENRY, M.A., V.M.H.

NATIONAL CHRYSANTHEMUM SOCIETY.—The Society has decided to hold two exhibitions during 1910. They will be held at the Crystal Palace on October 5 and 6 and November 2, 3 and 4 respectively. A conference will be held at Essex Hall on Monday, December 5. The annual outing will take place on Monday, July 25, when a visit will be paid to Tring Park.

PRIMULA "GENERAL STUART."—We are informed by Mr. W. B. CRANFIELD that the variety of *Primula viscosa* for which he obtained an Award of Merit at the last meeting of the R.H.S. (see p. 268) is named General Stuart not Stewart, as was printed on the card.

TRIAL OF CARNATIONS.—The Perpetual Flowering Carnation Society has decided to continue the trials of Carnations, instituted last year, in the Royal Botanic Gardens, Regent's Park, N.W. The trial is for the special purpose of determining those of the perpetual-flowering type most suitable for cultivation in the open garden. Plants for trial should be well established in 60 pots, and have good, strong growths. They should be addressed to Mr. E. F. HAWES, Royal Botanic Gardens, Regent's Park, and reach him, if possible, during the first week in May.

MR. GEORGE WOODGATE.—We regret to hear that Mr. GEORGE WOODGATE, gardener to Sir OSWALD MOSLEY, Bart., at Rolleston Hall, Burton-on-Trent, is retiring owing to indifferent health.

HAARLEM JUBILEE FLOWER SHOW.—We are informed that the show was visited from March 23 to April 17 by 82,418 visitors. The financial results are so good that not only are the costs of the show already nearly paid, but a surplus may be expected. This result is satisfactory, as the show has practically no subsidy from the State or any public corporation, but only a guarantee fund. The Queen Mother of the NETHERLANDS paid a visit on April 15, the first day of the second temporary show. Queen WILHELMINA and Prince HENRY of the Netherlands have announced their intention to make an official visit on May 26, and, consequently, the fourth temporary show will be held from May 26 to 29, instead of May 20 to 22, as previously announced. The third temporary show (May 4 to 12) will have the character of a special Orchid show, and will be held under the auspices of the Netherlands Club of Orchid Amateurs.

TRIAL OF CABBAGES.—The trials of Cabbages undertaken by the National Vegetable Society at "The Times" Experimental Station, Sutton Green, and Mr. POUPART'S farm, Twickenham, have been inspected by a deputation of the Committee, and a report will be issued in due course. Mr. CHAS. FOSTER, superintendent of "The Times" Experimental Station, states that those interested can inspect the trial and the duplicate plantings at Sutton Green during the next few days.

INSECTS AND COLOURS OF FLOWERS.—It is held generally that the brilliant colours of many flowers serve to attract insects, and thus to secure, incidentally, the benefits of cross-pollination. In support of this view it has been pointed out that plants which are known to attract insects, and to be cross-pollinated, possess, as a rule, brightly-coloured flowers, whereas plants which are wind-pollinated are generally characterised by the possession of inconspicuous blossoms. Professor PLATEAU, who has devoted himself for many years to the study of this question, has come to the conclusion that the current view is unfounded. He maintains that the insects are attracted, not by the colours, but by the odours which are emitted by the flowers, and that the odours are sufficient in the complete absence of bright colours to secure the visits of the pollinating insects. Professor PLATEAU supports his contention by varied and numerous experiments; for example, he shows that in the cases of brightly-coloured flowers which, owing to the absence of perfumes, are not visited habitually by insects, it suffices to secure such visits merely to introduce into the flower a drop of honey-water. As to the further supplementary view that insects possess an æsthetic sense which enables them to prefer one colour to another, and to take a certain pleasure in colours, the Professor scouts the suggestion. He denies altogether this colour-choice, and thus, if his view is established, the popular books on floral biology will need a revision, which will rob them of one of their main assets.

BELVOIR CASTLE GARDENS.—Mr. W. H. DIVERS informs us that tender shrubs and plants have survived the past winter remarkably well at Belvoir, and the earliest kinds are now full of flowers. The spring bedding will be at its best during the first two weeks of May. The Duchess garden is open to the public every day except Sundays, and all the woodland walks and wild gardens are open daily.

INTERNATIONAL CONGRESS OF HORTICULTURE AT BRUSSELS.—The programme of subjects to be discussed at the congress (April 30 to May 3), contains a large number of matters of interest and importance. The questions to be submitted to the congress are classified into seven sections. The first section, floriculture, deals with the commercial forcing of flower-bearing plants in different countries, and with the germination of Orchids; the second section, Fruit-tree Culture, deals with the question of establishing a stud-book, the preservation of fruit by cold storage and other methods, the modes of prevention of disease, &c.; in the third section, market gardening questions relating to transport and modes of distribution and to the development of new markets will be considered; section four, the Science and Popularisation of Horticulture, will consider reform in programmes of horticultural exhibitions, the formation of an experiment station, the teaching of horticulture and horticultural nomenclature; in the fifth section, economic problems will be discussed; in the sixth, matters pertaining to landscape gardening will be considered; and in the seventh, sundry recent horticultural practices examined, viz., the influence of electric light on plants, etherisation and hot-water treatment in the forcing of plants. The programme, as will be seen from the above summary, is extensive, and the discussions should prove of real value.

A NEW SERIES OF BOOKS ON GARDENING.—Under the general title of "Present-Day Gardening," Messrs. JACK are about to issue a number of works by well-known authors on garden subjects. The series is edited by Mr. R. HOOPER PEARSON, and the first two volumes are to be by Mr. WILLIAM CUTHBERTSON (*Pansies, Violas, and Violets*) and Mr. HORACE J. WRIGHT (*Sweet Peas*). These volumes will be followed immediately by *Daffodils*, by the Rev. J. JACOB, and *Orchids*, by Mr. JAMES O'BRIEN. Among the works of the series to be published subsequently is *Rhododendrons and Azaleas*, by Mr. WILLIAM WATSON, Curator of the Royal Botanic Gardens, Kew. In all, eight volumes will be issued during the present year. The illustrations, some of which we have had an opportunity of inspecting, are remarkable both for their artistic merit and fidelity to nature. They consist of reproductions in colour of photographs taken by Mr. T. ERNEST WALTHAM, from actual specimens. Each volume will contain eight coloured plates, and will be issued at the price of 1s. 6d.

* **"HOW TO USE NITRATE OF SODA."**—The sixth edition of this useful pamphlet, with a preface by Dr. BERNARD DYER, will prove serviceable to those who require instruction in the uses and modes of application of this nitrogenous fertiliser. As our readers are aware, nitrate of soda and sulphate of ammonia are, with respect to their effects on soils, complementary to one another. Hence neither should be used for a long period of years to the exclusion of the other; but, in all intensive cultivation, the employment of one or the other is, of course, essential for the production of the maximum yield.

* *How to use Nitrate of Soda.* (Published by G. Street & Co., Ltd., 30, Cornhill, London.)

THE CENTENARY OF THE BIRTH OF L. VAN HOUTTE.—The name of LOUIS VAN HOUTTE will for ever find a place in the roll of honour of distinguished horticulturists. Born at Ypres in 1810, VAN HOUTTE devoted his life to horticulture, introduced large numbers of new plants, and built up a great nursery business at Gendbrugge, which he conducted with extraordinary success on lines which combined in the happiest and most fruitful manner scientific with commercial methods. With reason, the Belgian horticulturists honour his name and regard him as the father of Belgian horticulture. It is, therefore, fitting that the centenary of his birth should be chosen as the occasion for commemorating the name of VAN HOUTTE. In this commemoration the commune of Gendbrugge-les-Gand, in which his great business was carried on, and of which he served as Burgomaster for upwards of 20 years, takes the initiative. Recognising that the name and fame of VAN HOUTTE have long since passed the Belgian frontier and have extended throughout the horticultural world, the communal authorities have invited prominent horticulturists from all parts to take an active part in the VAN HOUTTE celebrations. Mr. M. VERDONCK, the orchidist, is chairman of the committee, and the Gover-



THE LATE LOUIS VAN HOUTTE.

nor of la Flandre Orientale, le Baron DE KERCHOVE D'EXAERDE, has accepted the presidency. It is hoped that the KING OF THE BELGIANS and the MINISTER OF AGRICULTURE will also honour the fêtes with their patronage. Details of the arrangements in connection with the celebrations, which will take place on June 26, will be announced in due course. The secretaries of the committee are Messrs. L. DE LOOF and H. D'HAESE. We venture to express the hope that the committee may be able to arrange for the publication of a volume dealing with the life and work of this remarkable man, so that, when those whose honour it is to take part in this commemoration have passed away, a permanent memorial and record of the achievements of LOUIS VAN HOUTTE may remain for the edification of future generations of horticulturists.

CIDER FROM DISINFECTED APPLES.—The interesting experiments made by Messrs. H. ALLIOT and G. GIMEL (*Comptes Rend.*, 1909, 149, 532), and abstracted in the *Pharmaceutical Journal* (February 26, 1910), are well worth the attention of all those interested in the manufacture of cider. The results of the experiments in question show that by washing the cider

Apples before crushing with a weak solution of chlorinated lime (1½-2 oz., avoirdupois, to 22 gallons of water), the quality of the cider is greatly improved. The disinfectant destroys most of the micro-organisms on the surface of the fruit, but does not injure the yeast (*Saccharomyces mali*), to the fermentive action of which the production of cider is due. Another and no less important result of this preliminary disinfection is that much less sugar is destroyed during the process of fermentation; thus the amount of sugar in the cider produced from "washed" Apples was found to be 21.1 per cent., as compared with 2.1 per cent. in the "unwashed" Apples, and this notwithstanding the fact that the alcohol is very little more (4.8 per cent.) from the "unwashed" than from the "washed" Apples (4 per cent.). As our contemporary points out, cider manufacturers in this country might well adopt this simple method for improving the quality and value of a drink which has of recent years regained considerable popularity.

A MODEL "FRENCH" GARDEN.—Messrs. SUTTON & SONS, Reading, will exhibit a model "French" garden in Warley Park, Birmingham, in Whitsuntide week, by permission of the LORD MAYOR and Parks Committee. The garden will cover some 1,000 square feet of ground, and will show the preparation of hot-beds, the uses of the cloches for raising seeds, and for cultivating seedlings. The following crops will be exhibited in frames or under cloches:—Cabbages, Carrots, Cauliflowers, Endives, Cabbage Lettuces, Cos Lettuce, Marrows, Melons, Peas, Radishes, Spinach, Strawberries, Tomatoes, Turnips. It is expected that the LORD MAYOR of Birmingham will visit the show on Whit-Monday, and afterwards the exhibition will remain open to the public free of charge until Friday, May 20.

A SIMPLY PREPARED INSECTICIDE.—A gardener recently brought to our notice an extremely simple method of getting rid of aphids on pot plants. He placed the affected plants in a box, threw in a few Laurel leaves, first crushing them somewhat, closed the box, and in 10 minutes or so the aphides appeared to be all dead. The explanation of the insecticidal action of the crushed Laurel leaves is, of course, as simple as the remedy. Laurel, like many other plants, contains a complex substance (a glucoside) which, when the leaf is injured, is acted on by a ferment (also contained in the leaf), and, decomposing, gives rise, amongst other things, to the excessively poisonous gas—hydrocyanic acid. The gardener who devised this remedy was, therefore, unconsciously fumigating with hydrocyanic acid gas. If the Laurel leaves are placed in a basin and a drop or two of chloroform added, the gas is liberated more quickly, and hence the insects succumb to it sooner. We do not suggest that the method is capable of wide or general use; but a fumigating box and a few Laurel leaves might come in handy where an occasional pot plant requires insecticidal treatment.

* **KEARTON'S NATURE PICTURES.**—Messrs. R. & C. KEARTON's wonderful patience and skill in photographing birds and other wild animals are universally known and appreciated; but, even so, the illustrations in Part I. of *Kearton's Nature Pictures* take the reader—and even the reviewer—by surprise. Certainly nothing more beautiful has been done in the way of truthful portraiture than the plates of the Guillemot and of the young Song Thrushes, which are included in this instalment of the work. They are a credit not only to Messrs. KEARTON, but to the publishers, Cassell & Co., by whom the work—to be completed in 24 parts—is issued.

* *Kearton's Nature Pictures*, 24 parts at 1s. each. London, Cassell & Co., Ltd. 1910

TRANSPARENT SEED PACKETS.—The post office of the U.S.A. has issued recently an order to the effect that seed packets transmitted by post must, if they are to secure third-class instead of second-class rates, be put up in packets of sufficient transparency to show the contents clearly without opening. The *American Florist*, which gives publicity to the regulation (vol. 34, No. 1,137, March 19, 1910), adds that a deputation of leading seedsmen "will wait upon the postmaster, in order to express its views on the subject."

THE WARTY DISEASE (BLACK SCAB) IN AMERICA.—This fungous disease, with which Potato-growers in various parts of our country are only too familiar, has made its appearance in N. America. According to Dr. Güssow, Botanist to the Dominion of Canada, *Chrysophlyctis endobiotica*—the agent of wart-disease—is rampant in parts of Newfoundland. As a consequence of Dr. Güssow's report, the U.S. Bureau of Plant Industry has just issued a circular—No. 52—in which is given a brief account of the symptoms of the disease. The probability of wart-disease establishing itself in America is considerable, for, in spite of the tariff of 25 cents per bushel, Potatoes are imported into the States to the extent (in 1908) of upwards of 400,000 bushels, and the imports are derived not only from Canada (177,000 bushels), but also from various European countries, e.g., Germany (62,000), Netherlands (38,000), Spain (11,000), and the United Kingdom (2,000), the figures being those for the year 1908.

A VOYAGE OF DISCOVERY.—The Council of University College, Reading, has appointed delegates to proceed on its behalf to Canada and the United States in order to inquire into and report upon the methods adopted by the leading agricultural and horticultural institutions of America, particularly with respect to teaching and research. Our readers will be interested to learn that this expedition, which starts on May 6, owes its initiation to Mr. LEONARD SUTTON (of Messrs SUTTON & SONS, Reading), and that this gentleman, and Mr. ALFRED PALMER have put at the disposal of the Council a sum of money to meet the expenses of the journey.

The delegates, who proceed to Canada by the Canadian Pacific boat the "Empress of Ireland," are Mr. LEONARD SUTTON, Mr. MANSFIELD, Mr. W. M. CHILDS (Principal of University College, Reading), Dr. KEEBLE (Dean of the Faculty of Science), and Mr. R. HART-SYNNOT (Director of the Departments of Agriculture and Horticulture). The delegation will be absent from England for about six weeks, and on its return will present a report to the Council of University College. It is to be hoped that as the outcome of this visit an institution similar in scope to the Agricultural and Horticultural State Colleges of Canada and the United States may arise in our own country. The importance of the part played by these institutions in the development of agriculture and horticulture in America cannot be overstated.

GARDENER'S GOLDEN WEDDING.—Mr. RICHARD CARTER, who held the position of gardener for 50 years at Batheaston Court, Somerset, celebrates his golden wedding on Sunday, May 1. Mr. CARTER retired from his duties at Batheaston Court in February, 1908. It is interesting to note that Mr. CARTER's father, Mr. ISAAC CARTER, was gardener for an equally long period at Hatch Park, Somerset. Both Mr. and Mrs. CARTER enjoy good health, and Mr. CARTER can still practise gardening at his home at "Rose Cottage," Butleigh, Somerset.

PUBLICATIONS RECEIVED.—*Alphabet of Gardening*, by T. W. Sanders. Fourth Edition. (London: W. H. & L. Collingridge, Alders-

gate Street, E.C.) Price 1s. 6d.—*Roses and Rose Culture*, by William Paul. Eleventh Edition revised. (London: Simpkin, Marshall, Hamilton, Kent & Co.) Price 1s.—*New York Agricultural Experiment Station. Bulletins: The Bacterial Soft Rot of certain Vegetables.* Part I. The Mutual Relationships of the Causal Organisms, by H. A. Harding and W. J. Morse. Part II. Pectinase, the Cytolytic enzyme produced by *Bacillus carotovorus* and certain other Soft-rot Organisms, by L. R. Jones; Crown-rot Arsenical Poisoning and Winter-injury, by J. G. Grossenbacher; Concentrated Lime-sulphur Mixtures, by P. H. Parrott; Report of Analyses of Samples of Fertilizers Collected by the Commissioner of Agriculture during 1909; A Chemical Study of the Lime-Sulphur Wash, by L. L. Van Slyke, C. O. Hedges and A. W. Bosworth. (Published by the Station.)—*United States Department of Agriculture (Bureau of Plant Industry). Bulletins:* Wart Disease of the Potato, by W. A. Orton and Ethel C. Field; The Control of the Peach Brown-Rot and Scab, by W. M. Scott and T. Willard Ayres; Three Much-misrepresented Sorghums, by Carleton R. Ball; Improvement of Pastures in Eastern New York and the New England States, by J. S. Cotton. Circulars: Fruit Growing for Home Use in the Central and Southern Great Plains, by H. P. Gould; Mutative Reversions in Cotton, by O. F. Cook; The Substitution of Lime-Sulphur Preparations for Bordeaux Mixture in the Treatment of Apple Diseases, by W. M. Scott. (Bureau of Entomology.) Some Insects injurious to Truck Crops. (Washington: Government Printing Office.)—*The Western New York Horticultural Society.* Proceedings of the Fifty-fifth Annual Meeting held at Rochester, N.Y., January 26, 27, 1910. (Rochester, N.Y.: Democrat and Chronicle Press.)—*The Estate Magazine*, edited by Wm. Broomhall. (London: Spottiswoode & Co., New Street Square.) Price 6d.—*Ontario Department of Agriculture.* Bulletin: Swamp or Muck Soils, by W. P. Gamble and A. E. Slater. (Toronto, Ont.: L. K. Cameron.)—*Board of Agriculture and Fisheries.* Leaflet, No. 230: Cucumber and Tomato Canker.—*The Journal of the Board of Agriculture for April.* (London: Printed for His Majesty's Stationery Office by R. Clay & Sons.) Price 4d.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE LASTING QUALITY OF THE LYON ROSE.—The remarkable substance possessed by this Rose was demonstrated last week, when flowers exhibited in the warm atmosphere of the R.H.S. Hall were despatched to Falmouth, and they looked quite fresh at the exhibition there on the Thursday and Friday. This lasting quality is an additional merit for the Lyon Rose. *Stuart Low & Co.*

EFFECTS OF LAST WINTER'S FROST IN THE SOUTH OF SCOTLAND.—While cutting out some plants of white Broom recently, which were killed by severe frost last winter when there were 41° of frost, or 9° below zero, I was astonished to find the seed in the pods of the killed plants quite fresh and plump. Out of curiosity I sowed some in a pot, where they germinated quickly and freely, which would seem to show that the more dormant a state plant life is in, during severe weather, the greater are the chances of survival, as in this case the seed was able to survive a temperature that killed the plants. Roses have been nearly all killed to within 6 inches of the ground. All the shoots on climbing Roses, both on iron arches and wooden posts, are dead, with the exception of Gloire de Dijon, which is just alive. Brassicas, which were above the snow at the time, were all killed outright. The Loganberry was also killed, whilst Raspberries, growing alongside, show no signs of having suffered. Shrubs have been killed outright, including Berberis Darwinii, Laurestinus, and Forsythia, whilst even the Box edging is badly burned in places. *Alec McKinnon, Clifton Park Gardens, Kelso.*

CORDYLINAE AUSTRALIS.—Seeing that at least one species of Palm, *Trachycarpus excelsus*—more generally known as *Chamaerops Fortunei*—often ripens its seeds in the warmer parts of Cornwall,

where natural seedlings not infrequently spring up around the parent plants, it is not surprising that there are various instances of *Cordylina australis* ripening its seeds in the open air. Even here, at Pencarrow, in the coldest part of Cornwall, good seeds are occasionally produced, and I have a batch of seedlings raised from our own seed. At Prideaux Place, close to Padstow—a warmer locality than this—the seeding of this "Club Palm" has ceased to occasion remark. Some few years ago Mr. Brown showed me quite an interesting amount of variation in the foliage of some home-raised seedlings, which he was then placing in permanent positions. Since then I have observed an equal amount of variation in *Cordylines* raised at Pencarrow. Whilst young, the leaves vary from long, thin, strap-like appendages to stout, sword-shaped leaves nearly approaching those of the true *Cordylina indivisa*, but, of course, without the beautiful colour of the midrib. As the plants increase in size their leaves seem to lose the extremes of their breadth, but a considerable difference still remains. As Mr. Yates remarks, the flower-spikes last well in a cut state; they are very fragrant, and when growing attract myriads of flies. I am inclined to the opinion that at maturity, when the plant has developed the club-shaped appendage at the base of its stem, from which it derives the common name "Club Palm," the feeding roots are annual, or at any rate short-lived, for on removing several 25 feet high examples which had been killed by more than usually severe frosts, I was surprised to notice how few and thin were their roots. On the contrary, as is generally known, younger and vigorous-growing plants produce a mass of roots. *A. C. Bartlett.*

FUMIGATING WITH CYANIDE.—There are a few things that I have found through experience with this gas, formed by the interaction of cyanide of sodium and sulphuric acid, that may be of some value to those that are likely to give it a trial. It is absolutely necessary to get the temperature below 50°, or it will affect the young points of anything that may be in the house that is being fumigated, although the more hardened foliage will not be injured. I will now endeavour to explain how we first proved the marked influence which temperature has on the effects of hydrocyanic acid gas. The first house that we decided to operate on was an intermediate house adjoining the stoves. We got the machines ready with the required amount of sulphuric acid and water in the basins, and the cyanide of sodium in the receptacle at the top of the machine where the string is attached, which, when pulled, allows the cyanide of soda to drop into the sulphuric acid and water. There were many plants in this house affected with bug; I will mention a few of these: Poinsettias, Callas, Lasiandras, Solanums, Liliums, Schizanthuses, Grevilleas, *Primula kewensis*, and *P. sinensis*. These things were affected but very little, the damage, if any, being confined to the points. The young foliage shows no ill-effects until the sun shines next day, therefore drop the blinds and keep them down until the effects of the gas have had time to pass. In reference to the stoves adjoining, the gas naturally got through or under the doors and affected the stove plants pretty badly; this proved to me the necessity of having the temperature below 50° at least. A vinery containing vines in a dormant state may be fumigated with every confidence of success and safety, but I would not advocate it in the growing season, as I have no experience. The plants might possibly suffer no harm if the weather on the following day were dull, or means were taken to shade the vines. A vinery joining the early vinery here was fumigated when the latter was well advanced, and the fumes must have penetrated but did not do any harm. *Charles Herdridge, The Gardens, Dunham Massey Hall, Altrincham.*

ANEMONE SULPHUREA (see p. 266).—The passage which Mr. H. Stuart Thompson criticises in my note, which appeared at p. 195, should have read thus: "plants occupying rocky crevices or very strong ground in their native habitats"; the plants which occupy the crevices as opposed to rocky ledges where debris and humus abound. It is such plants as the Adonises, *Anemone vernalis*, A. alpina, A. sulphurea, A. pulsatilla, among many others, that come to hand, with the merest stumps of roots

attached that I had in mind. These are so ruthlessly torn from their positions, that they are pre-doomed to failure. Judging by the plenitude of such examples, as compared with those that come from rock ledges and the like, the ordinary collector of Alpine plants has neither the time nor the inclination to peel away rocks to obtain fibrous roots to the plants. It is the lack of root-fibre that is responsible for many of the failures of collected Alpines, and, in particular, of those plants which incline to produce tap-roots. Naturally, in their rooting, many Alpine plants are largely influenced by circumstances and environment, and seeds of one species may find a resting place on a bed of debris and humus in a fissure of rock, or on the nearly vertical face of the rock itself, the resulting plants affording widely diverse opportunities to the collector. Referring to the ease with which certain groups of plants found on rocks—*Saxifragas*, *Primulas* and *Sempervivums*—are established, Mr. Thompson inquires, "Is not *Anemone sulphurea* itself a case in point?" and the answer is only as far as that species—for it has now for some years been elevated to specific rank by botanists—is collected or collectable with abundance of fibrous roots attached. Imported roots are usually mere stumps without any fibrous roots. Where is there any evidence of the successful cultivation of the thousands which have been imported during the last 25 years? There is no cultural difficulty, provided the cultivator has reasonable material, and yet I can look back upon thousands of plants of *Adonis* and *Helleborus niger* and not 10 per cent. have lived. It was my knowledge of these facts, and the haphazard discovery many years ago that some of the plants inclined to produce fibrous roots if planted in fibre or ashes, while they perished outright when planted in soil, that caused me to recommend the first-named treatment for such things. It was also the obvious superiority of the home-raised seedling plant to the collected one that caused me to send the photograph of the twain to the Editors of the *Gardeners' Chronicle*, as it furnished a useful object lesson. *E. H. Jenkins.*

PRUNING NEWLY-PLANTED FRUIT TREES.—

The framework or foundation of all trained trees meant for walls or trellises is laid before they leave the fruit-tree nurseries, and all the fruit-grower has to do in the way of cultural treatment is to develop the young trees into established specimens covering the allotted space on walls or trellis in as short a time as possible with healthy fruit-bearing wood distributed evenly. Every practical fruit-grower is well aware that if the young, strong, central shoots of dwarf or standard-trained fruit trees are left unpruned and secured in their summer position to the trellis or wall in that state, young growths will necessarily push from their ends instead of from their bases. But the said strong central growths should be treated in the manner recommended in the issue of the *Gardeners' Chronicle* for April 9 (p. 234), namely, "When the sap begins to rise in the young trees the first year after planting, bend the unpruned shoots towards the ground and secure them to the trellis or wall, the bend starting from the point at which the first of the young growths is desired. The check thus given to the flow of sap causes a sufficient number of woodbuds to push from each shoot to form a good-sized fan-shaped tree the first year after planting." The woodbuds will then push regularly into growth the entire length of each shoot from their bases. After which, the previous and current years' growths can be duly arranged to cover the space prescribed for each tree. Any reader of the *Gardeners' Chronicle* residing in the northern counties, who has young buds of the description indicated, can, even at this somewhat late date, prove for himself the efficacy of the extension system which I recommend to be practised in the training of wall or trellis fruit trees the first and second year after planting. The system of training or treating dwarf-trained trees the first year after planting is not only natural but also a most easy and expeditious way of obtaining good-sized well-furnished fruit trees in as short a time as possible. I have practised the method herein advocated for over 30 years with complete success; hence my advocacy of it. *A.D.*, in concluding his interesting note, inquires, "What would be the effect on Raspberries, Currants, Gooseberries or Roses, for instance, were there

no pruning exercised on them the year after planting?" I may remind your correspondent that were Raspberry canes cut down to the ground line the year after planting, say February or March, his summer-bearing Raspberries would be converted into autumn-bearing plants. As regards Currants, Gooseberries and Roses, they must be pruned annually; the same may be said regarding the pruning of bush, pyramid and standard fruit trees, but what I strongly objected to is the cutting-back indiscriminately of young trained trees the first year after planting, thereby wasting a couple of years' growth. All fruit trees, we are perfectly aware, require skilful summer and winter pruning. Some of us fruit-growers are, I think, afraid to depart from the old and firmly-established methods, regardless of the fact that were it not for such occasional departures from "old-time" practices, there would not be much progress made in any professions or walks of life. *H. W. W.*

The correspondence on this subject is interesting. I have read the remarks of *A. D.*, and of Mr. F. Lansdell, of Worcester (see p. 266). The latter causes me some surprise by his statements regarding the extent of the injury to the roots of transplanted trees, and to the effect that newly-planted trees should not be pruned after November. In my ignorance, I actually plant fruit trees in April, and prune in May! To-day, April 22, I am transplanting seven or eight Plum trees, in full flower—because it suits my convenience to do so. Perhaps they will die; if they do, they will be my first failure. If I were to plant Apples and Pears in February, and prune them during the first week in May, what would be the result? Or, again, if I plant 98 Plum trees at the end of March, and prune them on May 1, what percentage of deaths would there be, and what would be the general amount of growth made by the survivors? The soil is sandy loam, and many feet above the water-level of the district. *Enquirer.*

FERTILISATION OF MELONS AND CUCUMBERS

(see p. 252).—In the case of the Melon, not a few gardeners consider hand pollination essential to the securing of a "good set" of fruits, although without it I have had a far greater number of fruits set than the plant could mature. In the case of the Cucumber grown for market the set fruits are of an inferior stamp and realise lower prices. This is due mainly to the check following immediately upon the fertilisation of the fruits, and the additional facts that the fruits incline to swell in a lateral direction at this time rather than otherwise. On the other hand the maiden fruits continue to extend in a longitudinal direction, and such as these ever of a quicker growth, and maintaining their uniformity of outline throughout, are of the highest market value. The fruits of the Cucumber when set quickly demonstrate the fact by their club-shaped extremities, while the Melon, because of its characteristic rotundity and because of its internal capacity to accommodate the swelling seeds, displays no external evidence of fertilisation. I sometimes wonder whether the lack of flavour in some Melons is not due to fertilisation, as the demand of so great a mass of seeds upon the resources of the plant must be considerable. Whether the flesh of those Melons carrying a full crop of seeds is inferior to those having few seeds, or even none at all, I am unable to say, but perhaps some gardener who has taken the necessary steps to preclude the pollination of the flowers, will give his experience. Flavour in the Melon is important; and if by preventing seed production it can in any way be improved, the matter should be worth the attention of the private, if not the commercial, gardener. In the Cucumber, succulency and crispness take the place of flavour in the Melon, and these good attributes only attain to their highest excellence when the fruits develop unchecked from the start. Some years ago I suffered considerable loss through a neighbour's bees getting into the Cucumber houses and setting quite half the crops; and successional batches of fruit were only saved by the early removal of the male blossoms, persisted in day after day, a tedious and costly operation, where, as in my case, hundreds of plants were grown. *E. H. Jenkins.*

—*N. H.* says, on p. 252, that in France the fertilisation of Melons is practically un-

known. That is what I have always understood. He also says that his friend had 200 Melons that were not artificially fertilised. I have had many Melons ripen without being artificially fertilised by hand, and have been much interested in the result. When the fruits were cut I made a point of testing the seeds contained, to find out whether they were fertile or not. And as yet I have not seen or heard of a Melon that has ripened without containing some fertile seeds. In my own case I attributed the pollination process to the medium of black ants, which, during the growing season, overran the plants, and I often found some of these insects visiting both male and female flowers of the Melons. I should like to ask if *N. H.* has ever known a fruit of Melon ripen without containing fertile seeds. I have proved myself that the fruit of Cucumber will swell without being fertilised by pollen grains. This I have proved by removing the stigmatic surface of the female flowers before they had expanded, so that pollination was impossible. These fruits have been cut and examined, and I have never found one to contain a fertile seed. I maintain that the Melon plant cannot swell its fruit without the female flowers being fertilised by pollen from the male flowers of the same or nearly related species; that the Cucumber can and does swell its fruit without the female flowers being fertilised, the fruit containing no fertile seeds. In examinations I carried out (on fruit seed so tested) I found that the extine and intine or integuments of the ovule had developed into the testa (or seed covering), but the embryo had in no case commenced to develop, thus proving, what is well known to botanists, that it is a physiological impossibility for the vast majority of plants to bear fertile seeds, unless the ovules have been first of all fertilised by the action of the pollen grains. Why this difference between the two nearly-related species, that one has acquired the property of swelling its fruit without fertilisation, and the other, as far as I know, has not as yet acquired this property? *W. C. C., Babington.*

PROTECTING PEACH BLOSSOM.—

Mr. Ward's letter in your issue for April 16, p. 252, does not help much to solve the question as to whether as good crops of Peaches can be obtained from unprotected as from protected trees, provided both are planted against south walls and receive the same care and cultural skill in their growth. The fact that Mr. Ward has had the charge of close on a mile of wall trees, upwards of 200 yards of which walls were furnished from base to summit with Peach and Nectarine trees, all of which were protected whilst in bloom, and which bore heavy crops for 25 years, has nothing to do with the question at issue. No one wishes, or can, dispute the fact that grand crops are annually grown in hundreds of gardens on protected trees. That gardener who had been properly trained, and who has had a fair amount of experience in the work, would not be worth his salt if he could not produce good and regular crops under the same conditions. The question was raised by me in no carping spirit, but simply to try and elicit information on the point in the hope that, if my proposition and experience in the matter were supported with any weight of evidence, a greater stimulus and encouragement would be given to the more general growth of this valuable and delicious fruit amongst amateurs and cottagers possessing available south walls on their cottages or other buildings. It is not long since I heard of a cottager in Sussex who received more for a crop of Sea Eagle Peaches growing on the south wall of his cottage than paid his rent for the year. Mr. Ward's remarks with respect to his unprotected Peach trees on a Plum wall are more to the point. But here, by the fact that he does not seem to know whether there were two or three of those, it may be fair to assume that they scarcely received the same good attention culturally as did the protected trees, and possibly, in common with the Plum trees, they had a different aspect. *Peach Grower.*

TRADE NOTICE.

MR. ERNEST BENARY.

We learn that Ernest Benary, Jun., son of Mr. Frederick Benary, and Heinrich Benary, son of Mr. John Benary, have become partners in the well-known firm of Ernest Benary, seedsmen, Erfurt, Germany.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 19.—*Present*: Mr. E. A. Bowles, M.A., F.E.S., F.L.S. (in the Chair), Dr. A. B. Rendle, F.R.S., Messrs. J. Fraser, J. Douglas, A. Worsley, J. T. Bennett-Poë, W. Hales, W. Fawcett, E. M. Holmes, R. Hooper Pearson, and F. J. Chittenden (Hon. Sec.)

The late Mr. G. S. Saunders.—The members showed with deep regret of the death of Mr. G. S. Saunders, F.L.S., who had for many years been a regular attendant at the meetings of the Committee and who had acted as entomological referee. It was resolved that a vote of condolence should be conveyed to Mr. Saunders's relatives, the resolution being carried by the members in silence, upstanding in their places.

A four-memous Narcissus.—Mr. CHITTENDEN showed on behalf of Mr. Murray Thompson a flower of *Narcissus* "Sir Watkin," having eight perianth pieces, eight stamens, and a four-celled ovary with four-lobed stigma. The multiplication of parts in *Narcissus* flowers is frequent, but this specimen showed the multiplication very regularly.

Infertile Cineraria.—Mr. WORSLEY drew attention to a blue-flowered *Cineraria* which he found among others in his garden with the stamens developed, but containing no pollen.

Intermittent variegation.—Mr. BOWLES read a communication from Canon Ellacombe concerning variegation in *Sedum Telephium*. This plant had produced leaves variegated with pink in Canon Ellacombe's garden in 1908, and a piece of the plant was placed in Mr. BOWLES's garden, where, also, it was variegated. In 1909, however, in both gardens the shoots were wholly green, but this year again, in both gardens, they were coming variegated. Other examples of intermittent variegation were mentioned, most occurring when the plant in question had been placed under different conditions from that in which it generally grew and it was considered that variegation depended largely upon the environmental conditions acting upon the plant, as well as on an innate tendency to produce variegated foliage.

HORTICULTURAL CLUB.

OLD FRENCH FLORAL LITERATURE.

APRIL 19.—At the usual monthly dinner of this Club, held at the Hotel Windsor, under the chairmanship of Mr. W. A. Bilney, on the above date, Mr. C. Harman Payne delivered an address on "French Floral Literature Prior to 1800." The lecturer pointed out the fact that writers treated of such flowers as were in vogue, and these included many which are still familiar in gardens—Carnations, Cyclamen, Anemones, Pæonies, Roses, Ranunculuses, Tulips, Hyacinths, Crown Imperials, Antirrhinums, Balsams, Poppies, Foxgloves, Marigolds, Daisies, Lily of the Valley, Pansies, Wallflowers, Lilacs, Rosemaries, Sunflowers, Passion Flowers, Jessamines, Amaranth, Auriculas Everlasting Peas, Marvel of Peru, Primrose, Crocus, *Narcissus*, Tuberoses, Irises, Lilies, Orchids, Aquatics. These were treated on lines which, in many cases, must have involved great expense, and yet, as surviving examples prove, they ran into numerous editions, and held their own, in some cases, for many decades. These works appear practically to have formed the main foundation of English floricultural literature at that time, in the form of translations, and as many of them contained long lists of the names of the flowers concerned, they are of interest to such flower-lovers as are not contented with the mere study or culture of the plants themselves, but desire to know their origin and history. It is noteworthy that much of the data of that time was collected by ecclesiastics, while it is clear that, at that epoch, the wealth and stability, real or assumed, of the French court and aristocracy permitted of the needful support being given to encourage the publication of their records on liberal lines. By comparison, the English floral literature of the same period was insignificant. Incidentally, the lecturer lamented that our public libraries—even that of the British Museum—do not contain collections of old floral literature of this class, though in foreign libraries they are well represented. He

expressed the hope that the Royal Horticultural Society would do something in this connection with relation to the Lindley library. In the subsequent discussion, in which Messrs. Bilney, May, Druery, Walker, Sanders, Cook, and Jeffries took part, Mr. May, adverting to the lecturer's allusion to the salutary influence of the expatriated Huguenots on British floriculture, said that, as a youth, he recollected seeing Tulips and other flowers carefully cultivated at Spitalfields, where these exiles largely settled.

Mr. Druery, while fully appreciating the lecture from the bibliographical point of view, considered, from his own experience of ancient Fern literature, that it was of little or no use as a practical guide to culture nowadays, too often consisting of myth and fable and a multitude of synonyms, the great bulk of which had long since been discarded. Mr. Sanders and Mr. E. T. Cook pointed out that books on such flowers as the *Ranunculus*, which Mr. Payne regretted no longer appeared, would not pay nowadays, a theme which Mr. Bilney summed up by pointing out that, in the old days, such special treatises as had been described constituted the sole resource of would-be cultivators, while, today, people were kept fully informed day by day by a competent horticultural Press at next to no expense at all. He, however, fully recognised, as did the rest of the audience, that the historical side of floriculture was of absorbing interest.

DEVON DAFFODIL AND SPRING FLOWER.

APRIL 19.—This society adopted a departure from its usual custom in holding its show at Barnstaple instead of at Plymouth. The entries were as numerous as last year, the classes, especially those for Daffodils, being well filled, and it was gratifying to note that North Devon exhibitors came forward in large numbers. The quality of the Daffodils was specially commended by the judges, and competition was very keen in many of the classes. Hard-wooded flowering shrubs were exceptionally good, and the show of *Schizanthus* was also very fine. Lady FORTESCUE was awarded a Certificate of Merit for *Medinilla magnifica* and for a group of *Tritonia Elclair*. THE DEVON ROSERY, Torquay, had an effective stand, upon which were displayed choice varieties of Roses. The collection was flanked by choice examples of flowering shrubs and exotic plants. Messrs. R. VEITCH & SON, Exeter, staged an interesting selection of flowering shrubs and rock plants. Messrs. BARR & SONS, London, showed a large and representative collection of Daffodils.

The 1st prize-winners in the *Narcissus* classes were: Miss CLARICE VIVIAN, collection of Daffodils and Magni-coronati varieties; Mr. J. POPE, Medio-coronati varieties, *Incomparabilis* with white perianths, *Incomparabilis* with yellow perianths, and Leedsii varieties; Mr. H. G. HAWKER, Parvi-coronati kinds; Miss CLARICE VIVIAN, Poet's Daffodils; Rev. T. BUNCOMBE, single bloom of a Magni-coronati; Mrs. SOLTAN-SYMONS, single bloom of a Medio-coronati; Mr. H. G. HAWKER, single bloom of a Parvi-coronati.

There were also Daffodil classes confined to Devon and to North Devon. Mr. H. W. GRIGG won the 1st prize in the class for 12 varieties of hardy spring flowers, and for 12 varieties of hard-wooded flowering shrubs. The best Violets were shown by Countess FORTESCUE, Anemones by Mrs. MUIR, Anemone fulgens by Miss DAVIE, Tulips by Mr. H. W. GRIGG, hardy Primulas by Mrs. TERRY, and cut Carnations by Mrs. WIGRAM. Lord MORLEY had the best collection of *Rhododendron* blooms. Mrs. MUIR excelled with *Cineraria stellata* and Lily of the Valley, Capt. PARLEY with Auriculas, and Mrs. HIBBERT with *Schizanthus*.

KENT, SURREY AND SUSSEX DAFFODIL.

APRIL 20.—The fifth annual exhibition was held in the Great Hall, Tunbridge Wells, on the above date, in dull, but fine weather. The exhibition was as successful as any held in previous years, and the attendance appeared to be larger. The Rev. G. P. HAYDON was amongst the most successful of the exhibitors. He secured no fewer than eight 1st prizes in each instance with exhibits of first-rate quality. The silver cup offered for a collection of Daffodils consisting of 13 varieties of each of the three groups Trumpet, chalice-

cupped and saucer or flat-crowned, was won by Mr. J. A. NIX, whose collection comprised, amongst others, fine blooms of Rev. D. R. Williamson, Duke of Bedford, King Alfred, Weardale Perfection, Hamlet, Golden Bell, Lord Roberts, Mme. de Graaff representing the trumpet; Lady Margaret Boscawen, White Lady, Fair Maiden, Red Chief, Seagull and Cassack the chalice-cupped; and Ellen Barr, Frailty, Incognita, Almira, those of the saucer or flat-crowned. Mr. G. C. A. NIX was placed 2nd, and Mr. F. HERBERT CHAPMAN 3rd. In the class for 12 distinct varieties of Daffodils, representing the same three groups, the Rev. G. P. HAYDON secured the first honour, showing, amongst others, Katherine Spurrell, Chaucer, White Queen, Duke of Bedford and Cleopatra; 2nd, Mr. W. C. BULL; 3rd, Miss A. L. NIX. Mr. G. P. HAYDON won the 1st prize in the class for 12 distinct varieties of True Trumpet Daffodils, among which were Peter Barr, Pearl of Kent, Lord Roberts, J. B. M. Camm, and Weardale Perfection, &c.; 2nd, Miss A. L. NIX. In the class for 12 distinct single-flowered varieties of the chalice-cupped type, Rev. G. P. HAYDON took the chief honour with Lucifer, Easter, Katherine Spurrell, White Queen, Will Scarlet and Princess Mary. This gentleman who excelled in the class for six distinct single varieties of saucer or flat-crowned Daffodils with Barcarolle, Bullfinch, Sequin, Gleam, Tomtit and Chaucer.

In the class for the finest single bloom of a Magni-coronati or Trumpet Daffodil, Rev. G. P. HAYDON was placed 1st with Our M.P.; 2nd, Mr. C. G. A. NIX, with Weardale Perfection. The finest single bloom of a Medio-coronati (chalice-cupped) *Narcissi* was Bedouin, shown by Rev. G. P. HAYDON, who also showed the finest single bloom of a Parvi-coronati (saucer or flat-crowned variety) in St. Cosmas.

Trade exhibits included a fine stand of Daffodils shown by Messrs. BARR & SONS, London; hardy flowering shrubs and Alpines displayed by Mr. G. REUTHE, Keston, Kent; Daffodils and other spring flowers were shown by Messrs. G. & A. CLARK, LTD., Dover; Messrs. G. BUNYARD & Co., Maidstone; and Mr. G. CHARLTON, Tunbridge Wells.

ROYAL METEOROLOGICAL.

APRIL 20.—The monthly meeting of this society was held on Wednesday evening of this date at the Institution of Civil Engineers, Great George Street, Westminster, Mr. H. Mellish, F.R.G.S., president, in the chair.

A paper by Mr. W. C. Nash was read on the "Daily Rainfall at the Royal Observatory, Greenwich, 1841-1903." From the statistics given in this paper, it was shown that the average annual rainfall for the 63 years was 24.19 inches, with 157 rainy days. The day with the maximum number of rainy days to its credit is December 5, while the days with the least number of rainy days are April 18, 19, June 27 and September 13. There were 94 occasions during the whole period on which the rainfall exceeded 1 inch in the day. The greatest fall was 3.67 inches, on July 26, 1867.

GLAMORGAN DAFFODIL AND SPRING FLOWER.

APRIL 20.—The annual show of the Glamorgan Daffodil and Spring Flower Society was held in the Market Hall, Bridgend, on this date. The show was larger than those of former years and a success in every respect. There was a large attendance, which included members of most of the county families of Glamorgan. The Daffodils were exceptionally fine. Chief honours in this section went to Sir JOHN LLEWELLYN, Bart., C. H. CAVE, Esq., and Miss J. POPE. Alpine plants were also shown well.

The Silver Cup offered by Messrs. Barr & Sons for the best collection of Daffodils in 30 varieties was won by Mrs. RIDLEY; 2nd, Mrs. MOORE-GWYN; 3rd, T. MANN, Esq. The 1st prize for a group of seedling Daffodils not in commerce was won by Miss J. POPE. Miss Talbot, Margam Park, Glamorganshire, offered a Challenge Cup for 20 varieties of *Narcissi*, and this was won by Sir JOHN LLEWELLYN, Bart.; 2nd, Mrs. GODFREY CLARK; 3rd, Earl of PLYMOUTH.

In the class for 12 varieties of *Narcissi* the 1st prize was won by the Earl of PLYMOUTH; 2nd, Mrs. JOHN NICHOLL; 3rd, Mrs. MOORE-GWYN.

The 1st prize in a class for 20 varieties was a Cup presented by R. D. Llewellyn, Esq. It was awarded to Mrs. GODFREY CLARK; 2nd, Earl of PLYMOUTH; 3rd, Mrs. JOHN NICHOLL.

A Cup was also offered by Mrs. Mackintosh of Mackintosh for 15 varieties. The successful exhibitor was S. T. COLVILLE, Esq.; 2nd, Mrs. C. EDMONDES; 3rd, S. H. BYASS, Esq.

The Silver Cup, presented by Mrs. Godfrey Clark for six varieties of Hyacinths, was awarded to Mrs. MOORE-GWYN.

Amongst the spring-flowering plants, Polyanthus were well shown, and Mrs. Moore-Gwyn's Cup was deservedly won by S. H. BYASS, Esq., with a very fine display.

The Silver Challenge Cup, presented by Sir John Llewellyn, Bart., for the best collection of hardy (unforced) spring flowers, was won by Mrs. MOORE-GWYN; 2nd, Mrs. NICHOLL, senr.

For six species of Primulas Sir J. LLEWELLYN was placed 1st, and he also showed the best group of Rhododendrons from out-of-doors.

The secretary, Miss D. Booker, of Sion, and the committee are to be congratulated on the result.

ROYAL HORTICULTURAL OF IRELAND.

APRIL 20, 21.—The spring flower show was held in the Art Industries Hall, Ballsbridge, on these dates. The building is a large one and well lighted, so that the exhibits showed to advantage. Displays of Narcissi formed the principal portion of the exhibition; there were also Carnations, Roses, Gloxinias, Cinerarias, and other flowering plants. The trade exhibits were remarkably fine, and contributed largely to the success of the show.

The following are among the most important of the competitive classes. For the best exhibit of nine pot Roses, a Challenge Cup, valued at £10, was offered as the 1st prize. It was won by DAVID DRIMMIE, Esq., Bellevue, Booters-town (gr. Mr. M'Byrne); 2nd, T. A. MILLER, Esq., Windsor, Monkstown (gr. Mr. Colshan).

An important class was that for a table of foliage or flowering plants arranged for effect. The judges considered lightness and elegance of arrangement and uniformity of colour for harmonious blending as essential features. The prizes were presented by Mr. H. P. Goodbody, and they were awarded as follow: 1st, Miss REDMOND, Gortmore, Dundrum; 2nd, Miss O'MEARA, Farranboley, Clonskea; 3rd, Mr. T. F. CROZIER, Avonmore, Stillorgan.

Messrs. Robert P. Ker & Sons, Liverpool, offered prizes for six pots of Hippeastrums (Amaryllis). The 1st prize was awarded to Mr. ERNEST BEWLEY; 2nd, Mr. DAVID DRIMMIE.

Other exhibitors who won 1st prizes in the classes for plants were: Mr. F. V. WESTBY (Deutzias), Mr. T. F. CROZIER (Cinerarias), Mr. F. A. MILLER, Windsor, Monkstown (Cinerarias), and Mr. HENRY DUDGEON (Richardias).

BULBOUS FLOWERS.

The 1st prize for six pots of Tulips, of single-flowered varieties, in not fewer than three varieties, was awarded to Mr. ERNEST BEWLEY; 2nd, Mrs. GOODBODY. For six pots of double Tulips the result was similar, but Mrs. GOODBODY beat Mr. BEWLEY in the class for 12 single Hyacinths and also in that for six Hyacinths. Mr. BEWLEY was successful in Messrs. Edmondson Brothers' class for six pots of Hyacinths, and this exhibitor also excelled in the class for three pots of Hyacinths.

NARCISSI.

The most important class was for a collection of cut blooms, 50 varieties (not to include Polyanthus Narcissi), comprising the three groups, Magni-coronati, Medio-coronati, and Parvi-coronati, arranged in vases. A Challenge Cup, valued at £10, presented by the President, Lord Ardilaun, was offered in this class, and money prizes were presented by Messrs. Hogg & Robertson. The 1st prize was won by Mr. C. M. DOYNE; 2nd, Mr. R. T. HARRIS; 3rd, Mr. S. H. COCHRANE.

Mrs. GOODBODY won both the 1st prizes in the class for pot plants for Narcissi.

In the class for twelve distinct varieties of true Trumpet (Magni-coronati Narcissi), to be shown in vases, five blooms in each variety, Mrs. HELY HUTCHINSON and Captain O'CALLAGHAN were awarded equal 1st prizes.

For twelve distinct varieties of Medio-coronati

varieties, to be shown in vases, five blooms of each variety, Captain O'CALLAGHAN won the 1st prize and Mr. C. M. DOYNE the 2nd prize.

In the similar classes the 1st prize-winners were, for Magni-coronati, Mr. DAVID DRIMMIE; Parvi-coronati, Mr. C. M. DOYNE; and Medio-coronati, Mr. C. DOUGLAS.

Other prize exhibits of Narcissi were shown by Mr. W. ROSS, Mr. CHAS. PARR, Miss M. LITCHFIELD, and Mr. R. T. HARRIS.

In the class for 24 bunches of cut flowers, bloomed in the open air, comprising not fewer than 12 distinct varieties and not more than three of one genus, the 1st prize was awarded to Mr. C. M. DOYNE; 2nd, Capt. L. RIAL, D.L.; whilst for 12 vases of hardy cut flowers, bloomed in the open air, the 1st prize was won by Mr. S. H. COCHRANE, and the 2nd prize by Mr. W. ROSS.

For a collection of vegetables, six distinct kinds only, to be exhibited in trays not to exceed 3 feet by 3 feet, the 1st prize, presented by Messrs. W. Drummond & Sons, Ltd., Dublin, was won by Mr. S. H. COCHRANE; 2nd, Colonel W. H. POE, C.B.

TRADE EXHIBITS.

Sir JOSSLYN GORE BOOTH, Lissadell, Sligo, exhibited a choice collection of Narcissi (Silver Medal); Messrs. BROWETT & SONS, Kingstown, Palms, Ferns, and flowering plants (Silver Medal); Mr. V. DE C. HUGHES, Giltown Nurseries, Kilcullen, floral designs (Silver Medal); Messrs. JAMES CARTER & Co. staged a collection of Cinerarias; Messrs. HEATH & SON, Royal Exotic Nursery, Cheltenham, Alpine plants; TULLY NURSERY, Co. Kildare, Japanese garden and Alpine Plants (Gold Medal); Messrs. CHARLES RAMSAY & SONS, Royal Nurseries, Ballsbridge, a collection of foliage and flowering plants (Gold Medal); Messrs. HOGG & ROBERTSON, 22, Mary Street, Dublin, Daffodils (Gold Medal).

DEVON AND EXETER HORTICULTURAL.

APRIL 22.—The exhibition on this date was, perhaps, the best spring show held in Exeter, the exhibits were superior in quality to those at any show which has preceded it, the entries exceeded by 50 those of last year, and the trade exhibits were exceptionally good. The arrangements were well carried out by the newly-appointed honorary secretary, Mr. T. A. Andrews.

DAFFODILS.

The principal class was for 24 varieties representing the three groups, three blooms of each section, double and Polyanthus varieties being excluded. Through an oversight on the part of the exhibitor (Mrs. GAGE-HODGE), the best exhibit was disqualified. She included two vases of Albatross, thus reducing the number of her varieties to 23. The 1st prize was awarded to Mr. W. BROCK, Parkerswell (gr. Mr. Rowland), and the 2nd to Rev. T. BUNCOMBE, Black Torrington (gr. Mr. Mitchell). Many expert critics considered Mr. BUNCOMBE entitled to an equal 1st prize. In Mr. BROCK's collection were Weardale Perfection, Mme. de Graaff, King Alfred, Glory of Leiden, Gloria Mundi, Firebrand, Ariadne, and Bridesmaid. Rev. BUNCOMBE staged Weardale Perfection, Glory of Leiden, J. B. M. Camm, Mme. de Graaff, White Lady, Lulworth, George Nicholson, Cassandra, Olympia, Lucifer, and Herrick. Mrs. GAGE-HODGE put up King Alfred, Weardale Perfection, White Lady, Castille, Lucifer, Orangeman, Gleam, Horace, and Liddington.

In the next class, for 12 varieties, Mrs. BOLITHO (gr. Mr. W. J. Cobbin) was awarded the 1st prize, Rev. T. BUNCOMBE being placed 2nd. Mrs. BOLITHO staged Golden Ball, Fusilier, Mme. de Graaff, Homer, Barrii conspicuus, and Glory of Leiden.

In the class for six varieties of the Magni-coronati type, Rev. BUNCOMBE was awarded the 1st prize for Goldfinch, Mrs. Camm, Weardale Perfection, and Mme. de Graaff; 2nd Mrs. GAGE-HODGE.

For six of the Medio-coronati type, Mrs. GAGE-HODGE, Huxham Rectory (gr. Mr. A. Buchanan), was 1st with Seagull, Lulworth, Leonie, Lucifer, White Lady, and Gloria Mundi; 2nd, Rev. BUNCOMBE.

In the class for six Parvi-coronati blooms, Mr. J. COPE was 1st, with Beacon, Blood Orange, Vivid, and Bullfinch.

GENERAL PLANTS.

A keen competition took place in the classes for *Cineraria stellata*, *Schizanthus*, *Cyclamen*, *Dielytra spectabilis*, *Lily of the Valley*, and *Freesias*. Exhibits of *Hyacinths* and *Tulips* were of very poor quality, and the decorated tables were of a low standard. Among the chief prizewinners in the general plant section were the Mayor of EXETER (Mr. H. H. WIPPEL), Mr. BROCK, Mr. C. M. COLLINGWOOD, Mr. A. H. T. SHAPLAND, Mr. A. LYTHALL, Mrs. BOLITHO, and Miss KNAPMAN. Mr. BROCK's *Dielytras* were very fine, as also were Mr. COLLINGWOOD's *Cinerarias*, and Mr. LYTHALL's *Schizanthus*.

In the class for flowering shrubs, Mr. LYTHALL won the 1st prize, and the Mayor of EXETER the 2nd prize.

TRADE COLLECTIONS.

These were excellent. Messrs. ROBT. VEITCH & SON showed *Erica* × *Veitchii*, *Magnolia Soulangeana nigra*, *Clematis montana rubens*, fine specimens of *Daffodils*, and a bunch of hybrid *Gerberas*.

Messrs. BARR & SONS, King Street, Covent Garden, showed *Daffodils*, including Peter Barr, The Seraphim, Cingalee, Incognito, Firebrand, and The Cygnet.

The LISSADELL BULB Co., staged a collection of Narcissi, the varieties Acme, Dolly, Eileen, Mrs. Percy Foster, Judge Bird, Muriel, Maggie May, Rajah, and Waterwitch being shown in fine form.

Mr. GEO. KERSWELL made a display of Palms and conservatory and border plants.

LINNEAN SOCIETY.

MAY 5.—A meeting will be held at 8 p.m. on this date, when the following papers will be read: "Eight Months' Entomological Collecting in the Seychelles Islands," by Mr. Hugh Scott; "The Anatomy of *Hipula maxima*," by Mr. Jas. M. Brown.

Obituary.

CHARLES BAGGE PLOWRIGHT.—We regret to record the death of this distinguished mycologist, at North Wooton, Norfolk. For 30 years past the late Dr. Plowright has contributed to these pages, principally upon diseases of cultivated plants caused by fungi. He was born at King's Lynn on April 3, 1849, and commenced the study of fungi when a boy. He was a pupil at the West Norfolk and Lynn Hospital, eventually becoming surgeon and consulting surgeon of that institution. Whilst engaged as house surgeon he published his work *Sphaeriacei Britannici*. In 1872 he contributed before the Norfolk and Norwich Naturalists' Society a list of 800 fungi found in Norfolk. His studies of fungi brought him in contact with leading mycologists both at home and abroad. In conjunction with his friend, Mr. W. Phillips, of Shrewsbury, he published, from 1871 to 1874, a series of papers on new and rare British fungi, in which are described 296 species. The late Dr. Plowright was, in his early years, specially interested in the Pyrenomycetes, and he published several papers on the group. He also collected a large number of specimens, which, together with the rest of his herbarium, have been acquired by the Mason College, Birmingham. In 1891 Dr. Plowright drew attention to the use of the Bordeaux Mixture, which was then being employed in France as a preventive against vine mildew and Tomato disease, and which was also finding favour in France as a remedy for the Potato disease. Subsequently he worked on the Uredineae, and especially with the life-history of the so-called heterocercous species, on which he published papers in the *Linnean Journal* and the *Proceedings of the Royal Society*. In 1890 his well-known and exceedingly valuable book, *A Monograph of the British Uredineae and Ustilagineae* was published. He was also interested in archaeology, and published in the Norfolk and Norwich Naturalists' Society's various papers, including those on Neolithic man in West Norfolk, the native dye plants of Great Britain used by our ancestors, the archaeology of Woad, and the process by which its blue colour was extracted. Dr. Plowright was for 32 years Medical Officer of Health for Freebridge Lynn Rural District Council. He was Hunterian Professor of Comparative Anatomy and Physiology of the Royal College of Surgeons from 1890-1894.

MARKETS.

COVENT GARDEN, April 27.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemones, p. doz.	10-16	Marguerites, p. doz.	
Azalea, Ghent, per bunch	0-6-09	bunches white and yellow	3-0-40
Fieldier, per dozen	2-0-30	Mignonette, per dozen bunches	4-0-60
Bouvardia (see Richardia)	4-0-60	Narcissus, poeticus (Pheasant's Eye), per doz. bunches	1-0-20
Carnations, p. doz.		Soleil d'Or	1-0-16
blooms, best American (var.)	2-0-30	Odonoglossum, per crispaum, per dozen bunches	1-0-20
Carola, and other special varieties	4-0-50	Pelargonium, shw., per doz. bchs.	4-0-60
second size	1-6-20	Zonal, double scarlet	4-0-60
smaller, per doz. bunches	12-0-18	Richardia africana (Calla), p. doz.	1-6-26
Camellias, per doz.	1-6-20	Roses, 12 blooms, Niphetos	1-0-20
Cattleyas, per doz. blooms	6-0-90	Bridesmaid	1-6-26
Daffodils, best, per doz. bunches	1-6-36	C. Testout	2-0-30
seconds	1-0-20	Kaiserin A Victoria	1-0-30
double, per doz. bunches	1-0-16	Capt. Hayward	1-0-20
Eucharis, grandiflora, per dozen blooms	3-0-40	C. Mermet	1-6-20
Freessia, p. doz. bch.	1-0-16	Liberty	1-6-26
Gardenias, per doz.	1-6-26	Mine Chateau	1-6-40
Gypsophila elegans, p. doz. bunches	3-0-40	Richmond	2-0-40
Heather (white), per bunch	1-0	The Bride	1-6-26
Iris (Spanish), per doz. bunches	6-0-90	Spiraea, per doz. bunches	4-0-60
Lilac (French), per bunch	2-0-30	Stephanotis, 72 "pips"	3-0-40
Lilium auratum, per bunch	2-0-30	Stocks, per doz. bunches	3-0-40
longiflorum	2-0-30	Sweet Peas, per dozen bunches	2-0-40
lancifolium rubrum	1-6-20	Tuberose, p. gross per doz. blooms	4-0-60
lancifolium album	1-6-20	Tulips, singles, per doz. bunches	6-0-90
Lily of the Valley, p. doz. bunches	6-0-90	doubles, per doz. bunches	10-0-150
extra quality	12-0-150	Violets, per doz. bunches	1-6-20
		Parmia	1-6-26

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches	6-0-80	Ferns (French), Galax leaves, per doz. bunches	1-6-20
Asparagus plumosus, long trails, per doz. bunches	12-0-18	Hardy foliage (various), per dozen bunches	3-0-90
medium, doz. bunches	12-0-18	Ivy-leaves, bronze long trails per bundle	0-9-16
Sprengerii	9-0-12	short green, per doz. bunches	1-0-20
Berberis, per dozen bunches	2-6-30	Moss, per gross	4-0-50
Croton leaves, per dozen bunches	9-0-12	Myrtle, dz. bchs. (English), small-leaved	4-0-60
Cycas leaves, each	1-0-20	French	1-0-16
Ferns, per dozen bunches (English)	2-0-30	Smilax, p. dz. trails	4-0-60

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia Drummondii, per dozen	24-0-30	Cyclamen, per doz.	8-0-120
Ampelopsis Veitchii, per dozen	6-0-80	Cyperus alternifolius, dozen	4-0-50
Aralia Sieboldi, p. dozen	5-0-80	laxus, per doz.	4-0-50
larger specimens	9-0-120	Daffodils, per doz.	4-0-60
Moseri	6-0-80	Dracenas, per doz.	9-0-240
larger plants	12-0-180	Erica candidissima	18-0-240
Araucaria excelsa, per dozen	12-0-300	Cavendish, per dozen	24-0-360
large plants, each	3-6-50	persoluta alba	24-0-300
Aspidistras, p. dz., green	15-0-240	small plants (various)	3-0-50
variegated	30-0-420	Euonymus, per dz., in pots	3-0-80
Asparagus plumosus nanus, per dozen	9-0-150	Ferns, in thumbs, per 100	8-0-120
Sprengerii	9-0-120	in small and large 60's	12-0-200
tenissimus	9-0-120	in 48's, per dz.	4-0-60
Azaleas, per doz.	30-0-420	choicer sorts	8-0-120
Begonia Gloire de Lorraine, per dozen	12-0-180	in 32's, per dz.	10-0-180
Boronia heterophylla, per dz.	24-0-300	Ficus elastica, per dozen	9-0-120
megastigma	18-0-240	repens, per dz.	6-0-80
Calceolarias (herbaceous), p. dz.	6-0-80	Genistas, per dz.	5-0-80
Cinerarias, per doz.	5-0-80	Grevilleas, per dz.	4-0-60
Clematis, per doz.	8-0-90	pots, 3 in a pot	6-0-90
in flower	18-0-240	Isolepis, per dozen	4-0-60
Cocos Weddelliana, per dozen	18-0-300	Kentia Belmoreana, per dozen	18-0-240
Crotons, per dozen	18-0-300	Fosteriana, per dozen	18-0-300
		Latania borbonica, per dozen	15-0-210

Plants in Pots, &c.: Average Wholesale Prices (Cont'd.).

	s.d. s.d.		s.d. s.d.
Lilium longiflorum, per dz.	24-0-360	Mignonette, p. doz.	6-0-80
lancifolium, p. dozen	18-0-300	Selasnella, p. doz.	4-0-60
Lily of the Valley, per dozen	18-0-300	Spiraea japonica, dz.	8-0-100
Marguerites, white, per dozen	6-0-90	Stocks (Intermediate), per dz.	6-0-100
		Tulips in boxes of 24 bulbs	1-6-20
		pots, special	9-0-120

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples (U.S.), per barrel	24-0-270	Grapes (Cape), per box	
Albemarle Pippin	32-6	Barbarossa	9-0-200
(Canadian), per barrel		Black, per case	
Spy	22-6	Lemons, per case:	
(Nova Scotian), per barrel		(Messina, selected, 300)	10-6
Nonpareil	13-0	selected, large	9-6
Baldwin	14-0-170	medium, 360	7-6
Ben Davies	18-0	special cases, 330	8-6
(Californian), per case:		boxes, extra quality, 300	5-9
Newtown Pippin, 4 tiers, selected	10-6	Lychées, per box	1-6-19
4 tiers, do.	9-6	Mangoes (Cape), per doz.	4-0-100
4 tiers, seconds	8-0	Nuts, Almonds, p. bag	36-0-420
4 tiers, do.	8-0	Brazils, new, per cwt	50-0
(Oregon), Newtown Pippin, per case:		Barcelona, bag	32-0-340
4 tiers	13-0	Cob, per lb.	0-3-0-34
4 tiers	11-6	Cocoa nuts, 100	10-0-140
5 tiers	9-6	(Italian), p. bag	11-0-130
French Russet	8-0-100	Chestnuts,	
British Columbia	12-0-180	Huelva, sack	7-6
(Australian), per case:		Oranges—	
Cleopatra, selected large	13-0-140	Palermo Blood (80)	6-6-76
Do., medium	11-0-120	(100)	6-6-76
Jonathan	11-0-140	Californian Navel, box (80)	11-0-130
Monro's Favorite	11-0-140	" case (86)	11-0-130
Wellington	10-0-140	" (112)	11-0-130
(Tasmanian), per case:		" (126)	11-0-130
Ribston	8-6-90	Jaffas, case (144)	9-0-100
New York	10-0-110	Denia, per case (420)	12-6
Alfriston, cooking	9-0-100	Selected	13-6-146
Mobb's Codling	8-6-96	(420) large	20-0-250
Alexander	9-0	(714) specials	14-6
Scarlet Pearmain	9-0-100	(714) selected	16-6-186
Cox's Emperor	7-9	Valencia, per case (420)	11-0-200
Crews Egg	7-9	Messina Bitters, box (200)	10-0
Bananas, bunch:		Mandarine, Florida, p. case	10-0-120
Doubs	12-0	per box	14-1-6
No. 1	8-0-100	Jamaica, p. case	9-6-106
Extra	9-0-110	Tangerine box	6-0-90
Giant	11-0-140	Seville Sour, per 3 chest	15-0-160
Red coloured	4-6-60	Pears (Avacado), per doz.	6-0-120
Red Doubles	8-0-90	Pears, Beurrd Hardy (28, 32)	6-0-66
Jamaica	6-0	Winter Nelis	7-6
Loose, per dz.	0-6-10	Beurrd Bosc (24, 28)	6-0-66
Cranberries (American Cape Cod), per case:		Beurrd Clairgeau	6-0
Custard Apples, per dozen	6-0-120	(Australian), per tray	4-0-60
Dates (Star), cwt.	10-0	(Tasmanian), per case:	
Grape Fruit, case:		Beurrd Bosc	6-0-80
96's	14-0-180	Beurrd Clairgeau	6-0-80
80's		Beurrd Caprimont	
64's		Pineapples, each	2-6-40
54's		Plums, (Cape), Kelsey	10-0-120
Grapes, per lb.:		Strawberries, p. lb.	4-0-50
(Almeria), per barrel	20-0-250	seconds	1-0-20
p. 12 lb. baskets	3-0		
(Cape), p. box:			
Raison Blanc, 10 lbs. to 12 lbs.	6-0-70		
10 lbs. to 24 lbs.	12-0-140		
Hermitage	6-0		
10 lbs. to 12 lbs.	6-0		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	2-0-26	Cauliflowers, tally	6-0-80
Jerusalem, sieve	0-9-10	(French), per crate (24-30)	4-0-50
Asparagus, Paris Green, bundle	5-0	Celeriac, per doz.	2-6-80
Sprue	0-10-10	Chicory, per lb.	0-3-0-4
(Dijon)	2-3-26	Cucumbers, p. flat	
Lauris	8-0-40	30's	7-6-96
(Spanish)	1-3-16	36's	7-6-90
(Barcelona)	1-0	Endive, per dozen	2-0-23
Giant	6-0-100	Greens, Spring, bag	1-0-20
Montauban	4-0	Horseradish, foreign, new, per bundle	1-0-16
Toulouse	3-0-36	12 bundles	12-0-180
Beans (English and Chan. Islands), per lb.	0-9-12	Leeks, 12 bundles	1-0-16
Broad (French), per pad	3-6-46	Lettuce (French), (Cos), per doz.	4-0-50
(Madeira), per basket (6 lbs.)	2-6-36	Mint, doz. bunches	3-0-40
Beetroot, per bushel	1-0-16	Mushrooms, per lb.	1-0-13
Cabbages, p. tally	3-0-40	broilers	0-10-10
Cardoons (French), per dozen	8-0-100	Mustard and Cress, per dozen pun.	1-0
Carrots (English), dozen bunches	2-9-30	Onions (English), pickling, p. bushel	7-0-80
per bag	3-6-40	Spring, per dz. bunches	2-6
unwashed	1-6-19	(Valencia), per case	8-6
		Egyptian, bags	7-0

Vegetables: Average Wholesale Prices (continued).

	s.d. s.d.		s.d. s.d.
Parsley, 1/2 sieve	1-6-20	Seakale	1-0
Peas (French), pad	6-0-80	Spinach, 1/2 sieve	2-0-26
(Jersey) per lb.	0-10-12	(French), crate	2-0-26
Potatoes (Algerian), cwt.	13-0	Sprouting Broccoli, bag	1-0-16
(Channel Islands), per lb.	0-4-06	Stachys tuberosa, per lb.	0-4-05
(Teneriffe), per cwt.	13-0	Tomatoes—	
Rhubarb (forced), doz. bundles	10-1-3	(Teneriffe), per bundle	12-0-170
Natural, per tally	5-6-66	Tumpps, 12 bunches	2-0-30
Radishes (Guernsey), per dozen	0-8-09	bags	2-6-30
Savoys, per tally	4-6-60	dirty, per bag	2-0
		Turnip Tops, bag	2-0-26
		Watercress, p. flat	4-0-66

REMARKS.—Asparagus is arriving in increased quantities, and is finding a good market. Tasmanian Pears are selling freely: they are not so fine as those from Australia. Cape Grapes are meeting a fair market. A few English Peaches have arrived; they realised as much as 8s. per dozen. Strawberries are arriving in increased quantities, but the demand for them is not good, owing to the cold weather. Cucumbers are a fair trade. Consignments of both fruits and vegetables are larger. Business generally in both departments is quiet. E. H. Rides, Covent Garden, April 27, 1910.

Potatoes.

	per cwt.		per cwt.
Bedfords—		Lincolns—	
Up-to-Date	3-0-36	Up-to-Date	3-0-39
Blacklands	2-0-29	Dalmeny Beauty	2-6-39
Dunbars		Royal Kidney	2-3-26
Maincrop	5-0-53	Maincrop	2-9-36
Up-to-Date	4-0-46	King Edwards	3-3-39
Lincolns		Kents—	
Evergood	2-3-29	Scottish Triumphs	3-6-39
Sharpe's Express	2-3-26	Up-to-Date	3-6-39

REMARKS.—The conditions of trade and prices remain the same as last week. Edward J. Newborn, Covent Garden and St. Pancras, April 27, 1910.

COVENT GARDEN FLOWER MARKET.

The cold weather has checked the trade in bedding plants. One grower informed me he has already sold large quantities of Dahlias and other tender plants, including Fuchsias, Heliotropes, Coleus, and Tropaeolums, for bedding. Formerly no one thought of purchasing such plants until after the middle of May, but during recent years many growers commence selling them early in April, and by the middle of May they have disposed of their best stocks. Of Zonal Pelargoniums, Paul Crampel is the most attractive of the scarlet kind. Mrs. Brown-Potter is a fine pink variety, and there are several other good pink sorts. Of whites, Snowdrift is one of the best. Albion is another favourite market sort; and Mrs. R. Cannell is in demand as a salmon variety. Ivy-leaved Pelargoniums in 60's are well flowered; many florists use these small plants for window-boxes in preference to larger ones. Intermediate Stocks, Mignonette, Marguerites, Fuchsias, and Verbena Miss H. Willmot may be had, but Lobelia is not quite ready. Rhodantha is expected in the market next week. In greenhouse flowering plants, Azaleas hold out well, and are of the best quality. Zonal Pelargoniums are well flowered, F. V. Raspail being the most prominent. Rambler Roses are a feature; they are trained in various fashions, some of them over archways. I noticed some very fine plants of Deutzia gracilis, which is an old favourite of mine. Herbaceous Calceolarias are also very good. Fuchsias, and Heliotropes of the dark variety, are well flowered. Spiraea are remarkably good. Begonia Gloire de Lorraine is not quite finished, but is getting scarce.

CUT FLOWERS.

Although we have had cold nights, with little sun in the daytime, the supplies of cut bloom have not been smaller, in fact, the market is crowded with most things. Carnations have been selling rather better lately, but they are over plentiful. Richardias (Callas) and Lilliums are over plentiful. The growers endeavour to have these flowers ready for Easter, but many were a week or two late, and supplies are now excessive. A. H., Covent Garden, April 27, 1910.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]

Mr. JOHN JEFFREY, formerly at Drumlanrig Castle, Thornhill, and Eaton Hall, Chester, as Gardener to Sir ROBERT JARDINE, Bart., Castlehill, Dumfrieshire.

Mr. W. POULTON, as Gardener to Major MADDEN, Hilton Park, Clones, Co. Monaghan.

Mr. DONALD WHITELAW, for the past 4 years Foreman in the gardens of the Duke of MONTROSE, at Buchanan Castle, Drymen, as Gardener to BRERFORD MELVILLE, Esq., at Clare House, near Maidstone, Kent.

Mr. H. G. HULSE, for 5 years principal Foreman in the gardens of the Marquis of LONDONDERRY, K.G., Wynyard Park, as Gardener to Col. G. N. STARKIE, Huntroyd Park, Padiham, Burnley, Lancashire. (Thanks for donation of 2s. 6d. to R.G.O. Fund.—Eds.)

Mr. W. ADAMS, for the past 9 years Gardener to W. J. STUART, Esq., Dorincourt, Warrington, Surrey, as Gardener to W. YATES, Esq., Weir Cottage, Shepperton-on-Thames.

Mr. C. F. COATES, for the past 8 years Foreman at Hatley Park, Sandy, Beds., as Gardener to F. GOULDTHORPE-SMITH, Esq., Manor Park, Pott. (Thanks for 2s. received for R.G.O. Fund.—Eds.)

DEBATING SOCIETIES.

STIRLING AND DISTRICT HORTICULTURAL.

The monthly meeting was held on April 12, Mr. Geo. Petrie presiding. One member was elected and three nominations made for membership. Mr. Chapman, Torbrex Nursery, presented his prize, offered for the best essay on the season's excursions, to Mr. J. Dick, Gartur Gardens. The essay, together with a paper on vegetables by Mr. Jas. Boyd Touch, were read at the meeting.

GUILDFORD AND DISTRICT GARDENERS'.

Mr. H. Tann presided at the meeting of the above association, held at the Workman's Hall, on April 12. Mr. C. Moore, of Frensham Place, Farnham, gave a lecture on "Forced Vegetables and Salads."

WARGRAVE AND DISTRICT GARDENERS'.

At the last meeting of the association Mr. J. T. Blencowe, Wilminster Park Gardens, Henley-on-Thames, lectured on "Garden Gossip"; Mr. W. Marshall, photographer, of Henley, illustrated the lecture with pictures, shown by the aid of the oxy-hydrogen lime-light. Most of the pictures were taken by the new process of colour photography. Mr. Marshall showed, by means of diagrams, also in colour, how the photographs were taken.

READING AND DISTRICT GARDENERS'.

The last meeting of the spring session was held in the Abbey Hall, on April 18. The president, Mr. Alderman Parfitt, J.P., occupied the chair. There was a very large company present, including a number of lady visitors. Mr. T. J. Powell of The Gardens, Park Place, Henley-on-Thames, gave a practical demonstration in the art of arranging cut flowers. He arranged a bowl with *Magnolia*, *Pyrus* (*Cydonia*) *japonica*, *Spiræa*, *Narcissi*, and *Roses*; also vases of *Schizanthus*, shrubby *Spiræa*, and *Forsythia suspensa*; but his best effort was an overmantel, arranged with *Narcissi*, and again with *Roses*. The evening was set apart as "Hospital Night." More than one hundred bunches of cut flowers were contributed by the members. A collection was taken on behalf of the Royal Berkshire Hospital, and the sum of £38s. 6d. was realised.

BRISTOL AND DISTRICT GARDENERS'.

The annual meeting was held on April 21 at St. John's Parish Rooms. Mr. S. Shaddick presided over a large attendance. Mr. J. Scott read the annual report and the financial statement, both of which were considered satisfactory by the members. Col. Carey Batten was re-elected president. Mr. Hayball was chosen as chairman and Mr. Albert Perry vice-chairman. Messrs. J. Scott and H. Woodward were re-elected hon. secretary and treasurer and assistant secretary respectively. Four new members were enrolled. Several of the young members have made a full attendance for the session. Mr. Shelton won the silver medal offered for the highest number of points gained at the meetings.

CROYDON AND DISTRICT HORTICULTURAL.

At the meeting held on Tuesday, Mr. Jos. Watson, B.Sc., Redhill, gave a lecture on "Leaves," and appropriate to his subject he quoted the words of Ruskin, who said "Leaves take all shapes as if asking to examine them." The society's electric lantern portrayed some slides the lecturer brought with him, including several on the structure of the leaf.

SCHEDULES RECEIVED.

Uxbridge and District Horticultural Society's Show to be held on Wednesday, July 13. In the open classes substantial prizes are offered for 24 cut blooms of *Roses*, and for 12 bunches of Sweet Peas. Secretary, Mr. Frank Grainge, The Cottage, Uxbridge.

Finchley Horticultural Society.—The 51st exhibition of Flowers, Fruit, Vegetables and Eggs will be held on Thursday, July 14, in the grounds of A. W. Gamate, Esq., The Manor House, Church End, Finchley. Secretary, Mr. W. Speller, 4, Phoenix Cottages, Dollis Road, Church End, Finchley.

Sutton Rose Society.—The 29th annual exhibition will be held in the grounds of Manor Park House, Carshalton Road, Sutton, on Saturday, July 2. Hon. Sec., Mr. C. W. Edwards, Brentwood, Ringstead Road, Sutton.

Carlisle Horticultural Association's third annual flower show to be held in the Covered Markets, Fisher Street, Wednesday and Thursday, August 31 and September 1. Hon. Secretary, Mr. H. Matthews, 218, Warwick Road, Carlisle.

York Gala.—The preliminary programme announces that the exhibition will be held on Wednesday, Thursday and Friday, June 15, 16 and 17. The prize money offered amounts to £800, and in addition gold and silver medals will be awarded to honorary exhibits. Further particulars can be obtained from the Secretary, Mr. Fred. Arey, Davy-hall Chambers, York.

National Chrysanthemum Society's early autumn exhibition to be held on Wednesday and Thursday, October 5 and 6, and the great autumn show to be held on Wednesday, Thursday and Friday, October 2, 3 and 4. Both shows will be held at the Crystal Palace, Sydenham. Secretary, Mr. R. A. Witty, 72, Savernake Road, Gospel Oak, London, N.W.

Richmond (Surrey) Royal Horse Show to be held in the Old Deer Park, Richmond, on June 17, 18. Secretary and Manager, Mr. C. Capel Smith, 1, The Little Green, Richmond, Surrey.

CATALOGUES RECEIVED.

BEES, LTD., Mill Street, Liverpool—Carnations, Chrysanthemums, Clematis, Dahlias and Bedding Plants.

DOBIE & CO., Rothesay, Edinburgh, and Mark's Tey, Essex—General Catalogue.

CHINN & HANNAFORD, 52, Hatton Garden, London—"Klipall" Plant Support.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 23, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was again very cloudy and unsettled over the Kingdom generally. Passing showers of rain were very common, and some northern districts experienced a little snow. Early in the week the rain was heavy at some places in the north of Scotland. Thunderstorms occurred at some Scottish stations and at Oxford on Monday, and in some localities in the south-east of England on Friday. Aurora was observed at Gordon Castle on Thursday.

The mean temperature was above the average in England and Ireland as well as in Scotland W., but below it in the north and east of Scotland, the deficit amounting to rather more than 3° in Scotland N. The highest of the maxima were registered on rather irregular dates, but either on the 18th or 21st over a large portion of the Kingdom. The values range from 64° in England E. and S.E. and also in Ireland S. and 63° in many other districts to 54° in Scotland N. The lowest of the minima occurred on the 17th in Ireland and at many places in western parts of Britain, but much later in the week in the east and south-east. In Scotland N. and E. the thermometer fell respectively to 23° and 24° and in nearly all other districts to 32° or below it. In the English Channel, however, the lowest value was 41° and in England S.W. 35°. The lowest grass minima were 18° at Cambridge, 22° at Balmoral, Rauceby, Sheffield and Greenwich, and 24° at West Linton, Newton Rigg, Armagh and Tunbridge Wells.

The temperature of the sea.—At almost all stations the water was colder than during the corresponding week of last year, and at Kirkwall it was nearly 5° colder. The means for the week ranged from 49° at Newquay, Plymouth, Seahell and Margate to 41° at Burnmouth, and to 40½° at Kirkwall.

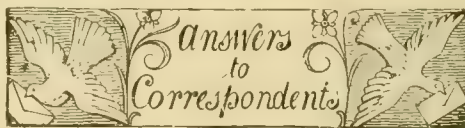
The rainfall was less than the normal in all the eastern and central districts of England and also in the English Channel, but more elsewhere, the excess being large in Scotland N. and Ireland S.

The bright sunshine was considerably below the average in all districts excepting Scotland E. The percentage of the possible duration ranged from 34 in Scotland E., 29 in Scotland W., and 26 in Scotland N., Ireland N. and the English Channel, to 20 or less in most parts of England, and to 17 in England S.E. At Greenwich only 9 per cent. of the possible amount was recorded.

THE WEATHER IN WEST HERTS.

Week ending April 27.

A cold week.—The first two days of the week were warm, and one of them the warmest of the year as yet, but since then the day temperatures have been low for the time of year. On the other hand, there were only two cold nights, and on the coldest of these the exposed thermometer did not register more than 8° of frost. The ground is now 1° colder at 2 feet deep, and 2° colder at 1 foot deep, than is seasonable. Some rain or hail fell on four days to the total depth of less than a quarter of an inch. On the 26th there occurred early in the afternoon a sharp shower of soft hail, which, for a short time, nearly covered the ground. There has been no measurable percolation through either of the soil gauges for three weeks. The sun shone on an average for four hours a day, which is about 1½ hours a day short of the average duration at this period in April. The wind was as a rule rather high, but in no hour did the mean velocity exceed 18 miles—direction W.S.W. For nearly three weeks there has been only one day when the direction of the wind has been any point between north and east. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by five per cent. E. M., Berkhamsted, April 27, 1910.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

ALLEGED BREACH OF CONTRACT: J. P. If it is the case that your foreman has a written agreement respecting the situation he was engaged to fill, it should be possible for him to obtain a month's notice or a month's salary in lieu of notice. Consult a local solicitor or write to the secretary of the British Gardeners' Association, Talbot Villa, Talbot Road, Isleworth.

BEES IN GRASS: C. S. P. Try the effect of "Vaporite" or one of the other proprietary articles for destroying insects in the soil. Spray the grass with an arsenical substance, such as Paris Green.

BREACH OF CONTRACT: Jas. G. As you did not visit the place before you took the situation, you must have received letters from your employer which would show whether or not there was a binding contract to supply the extra help referred to, and without seeing these letters it is impossible for us to express an opinion. Even if you could prove there

was a definite contract, you would not be likely to recover more than your expense of moving to and from your present situation. You had better not take legal proceedings without first laying the correspondence before a local solicitor. If you decide to remain in the situation, we do not consider you would have any claim whatever, as apparently there is nothing to prevent you giving notice without delay.

CARNATIONS: H. T. D., Polegate. The flowers were a little faded on receipt, but they were very attractive, although we could scarcely say they are distinct from varieties already in commerce. If you consider the seedling to have extra merits, it will be well to cultivate a stock until you are in a position to exhibit three plants in flower at a meeting of the Floral Committee of the Royal Horticultural Society. A great many varieties have come recently before this committee, and the opinion of this latter body as to the value of your seedling will be useful.

CLUB ROOT: A. J. E. This term is usually employed in the case of swollen roots attacked by a fungus—*Plasmodiophora brassica*. Send samples of the roots containing the grubs, for examination.

CORRECTION.—Owing to a printer's error, *Cedrus*, on p. 261, was spelled *Sedrus*.

CUCUMBER PLANT: J. H. A. There is no disease present: the trouble is due to some check. An overdose of manure, inattention in watering, cold draughts, or any cultural error would be sufficient to cause the damage.

CYCLAMEN BLOOMS: Japonica. The flowers of the plant mentioned are now past, but the blooms you send appear to be similar.

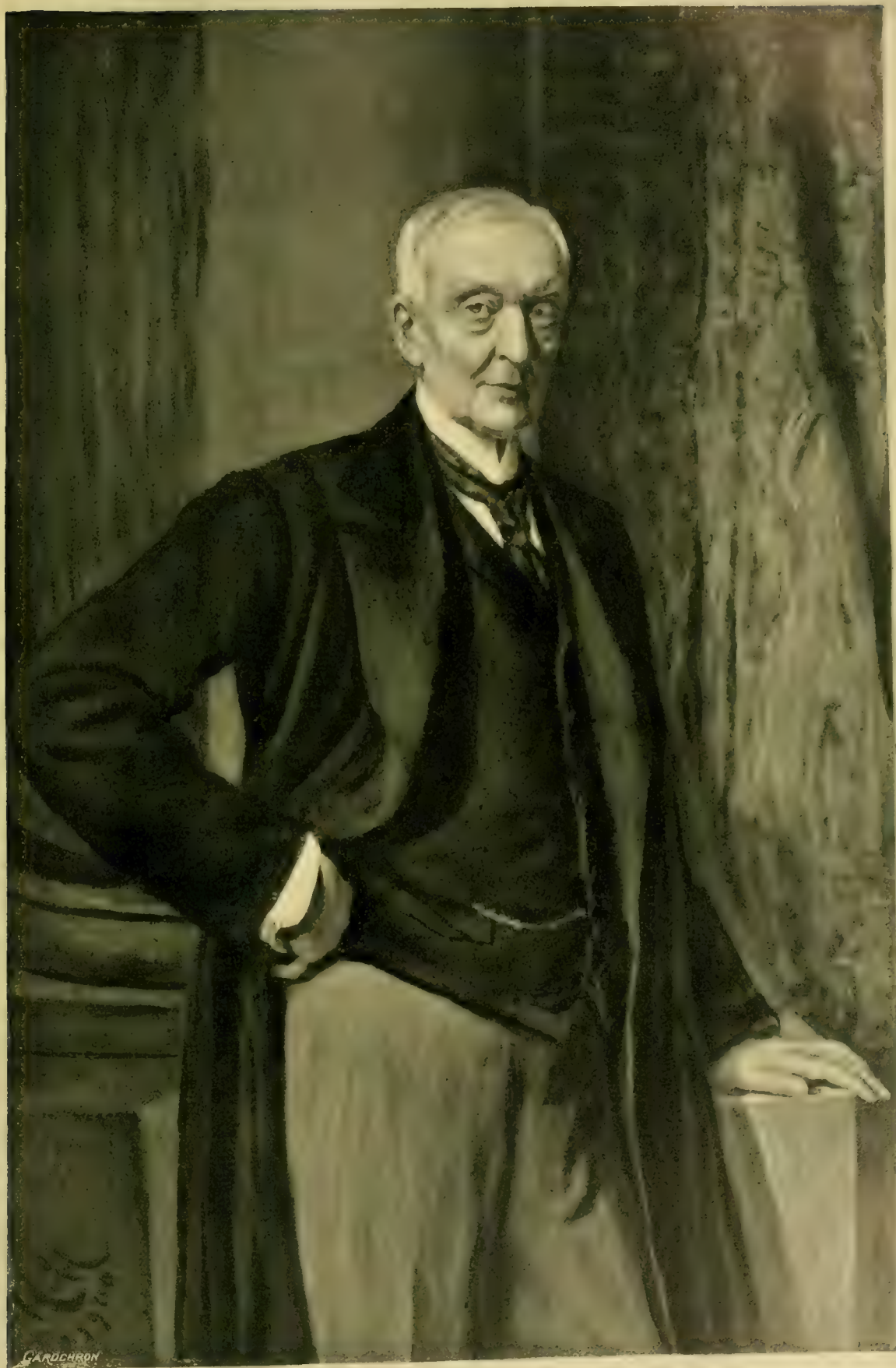
HOLLIES: Carnarvon. Hollies may be cut back now, provided you syringe the plants overhead each day and apply a good top-dressing of manure or old turf.

MEASURING THE HEIGHT OF TREES: Ignotus. The similarity of the curves obtained is due to the fact that, in both cases, movement—growth movement and projectile movement—are at first great and increasing, and then fall off, in the case of the projectile because the velocity is spent and gravity is free to manifest its action; in the case of the plant, because its vital energy, not being infinite, is used up gradually in doing the work of developing the plant.

NAMES OF PLANTS: Lady Grant Duff. *Erica carnea*.—*Johnstone*. 1, Send when in flower; 2, *Spiræa* sp. (send when in flower); 3, *Spiræa confusa*; 4, *Forsythia suspensa*; 5, *Olea fragrans*.—*A. W.* *Forsythia suspensa*.—*R. S. P. H.* 1, *Melia Azedarach* (common Bead Tree); 2, *Senecio macroglossus*, so far as can be determined without flowers.—*J. S.* *Cypripedium vill.-exul* (*villosum* × *exul*).—*E. N.* *Odontoglossum triumphans*.—*A. R.* 1, *Oncidium sphacelatum*; 2, *Cochlidia vulcanica*; 3, *Sophranitis cernua*; 4, *Masdevallia triaristella*.—*C. N., Bath*. 1, *Acalypha hispida*; 2, *Dendrobium thyrsiflorum*; 3, *Codiaeum* (*Croton*) *variegatum*.—*R. T. H.* *Cœlogyne ocellata*.—*A. B. H.* *Schomburgkia undulata*.—*F. F.* 1, *Adiantum hispidulum*; 2, *Pteris longifolia*; 3, *Asplenium lucidum*; 4, *Blechnum occidentale*; 5, *Cœlogyne flaccida*.—*Tipperary*. 1, *Arum Dracunculoides*; 2, *Asperula odorata* (*Woodruff*).

PEACH LEAVES WITH HOLES: J. L. The trouble is due to the "Shot-hole" fungus (*Cercospora circumscissa*). This fungus attacks several kinds of stone fruits. Spray the trees with the ammoniacal solution of copper carbonate at intervals. This fungicide is prepared as follows:—Take of copper carbonate 1 ounce, carbonate of ammonia 5 ounces, and water 16 gallons. Mix the carbonate of copper and the carbonate of ammonia, and dissolve it in about a quart of hot water. When thoroughly dissolved, add 16 gallons of cold water.

Communications Received.—N. C. M. (thanks for contribution to Royal Gardeners' Orphan Fund). *Dobbie & Co.*—A. I. K., Breconshire—T. R.—A. A. T.—O. B., Sweden—H. S.—K. & Son. You should address your letter to the R.H.S. Council, the matter complained of being quite outside our responsibility. —W. G. S.—W. J.—T. R.—W. D.—J. F.—D. R.—E. H. J.—W. S. B.—F. M.—F. T.—H. U.—H. S. T.—W. E.—B. G.—C. F. K.—A. W.—S. A.—H. & G., Ltd.—G. W.—A. H.—W. B. H.—Sons—F. H.—A. H. S., Derby—A. C. H.



THE LATE BARON SCHRÖDER, C.V.O., V.M.H.

From the painting by Mr. Herman Herkener.



THE

Gardeners' Chronicle

No. 1,219.—SATURDAY, May 7, 1910.

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THE INTERNATIONAL CONGRESS OF HORTICULTURE.

THE preliminary report of the Brussels International Congress of Horticulture, held in connection with the Horticultural Exhibition—a report of which is given on p. 300—contains a large amount of valuable and varied information, and provides conclusive evidence of the value of occasional international congresses.

As we announced last week, the work of the congress was divided among seven sections, so that not much that is of importance and interest in modern horticulture escaped consideration. The preliminary report, which is to be supplemented later, is written in French, and constitutes a volume of considerable size.

Though we can refer here to only a few of the many contributions to the discussions of the congress, we may mention those of Dr. Ritzema Bos (Director de l'Institut Phytopathologique), Professor Wagner, M. Maurice L. de Vilmorin, and Mr. Stuart Low.

Dr. J. Ritzema Bos gives an account of the admirable work of the Department of Plant Pathology in Holland. He recalls the fact that the institution of this department was the direct outcome of the devastation caused by the San José scale-insect among the fruit trees in the United States of America. As a consequence of the damage done by this pest, it was decided by the Legislatures of several of the States of the American Commonwealth to disallow the importation of all nursery stock not accompanied by a certificate declaring the material free from all disease. This was in 1899, and Holland, recognising the importance of retaining the States as a market for her horticultural produce, at once organised a pathological department to deal with matters appertaining to plant-disease.

The foundation of the department was productive immediately of good results, and this in more ways than one. For the tours of inspection brought the experts in plant-pathology in direct and frequent contact with the cultivators, and enabled the former both to widen their knowledge and to be of service to the cultivators in recommending suitable preventive measures. That is to say, Holland has enjoyed privileges for 20 years which growers in this country have not yet acquired—or, at all events, have acquired but incompletely.

After some years, it was found advisable to divide the work of the department into two branches, one devoted to general and the other to special enquiries into the origin and prevention of disease in plants.

The excellent practice was adopted in the same year of giving certificates free of cost and of granting certificates of immunity of inspected plants only under somewhat rigid conditions. Thus the excellent result was achieved that the certificates granted by the Department came to be regarded as real guarantees of cleanness of the inspected nursery and other stock. Every year the cultivator who wishes to avail himself of this system of State inspection is required to make application before a certain date. By this means it is possible to carry out the inspection, without which, of course, the certificate is not granted, during the summer months (April to October).

In certain cases, where inspection reveals the existence of serious diseases, the authorities have the right to destroy the affected plants, and the loss suffered by the owner may be made good by a subvention from the State, made on the recommendation of the head of the Institute for Plant-Pathology. Such, in brief outline, is the gist of Professor Ritzema Bos's communication, which should be read in its entirety by all interested in kindred problems in this country.

Among the several valuable contributions by Professor J. M. Wagner, we may direct attention particularly to that on a convenient and economical method of manuring fruit-trees. Dr. Wagner points out that the failures of artificial manures, when used on fruit-trees, are due in large measure to the fact that they are not applied in such a way that the feeding roots can take advantage of them. He also insists that fruit-trees which make considerable demands on the food-materials of the soil, require complete manures,

that is, those containing nitrogen, phosphoric acid, potash and lime. If these conditions are observed, the results of the use of artificials, particularly in the cases of young trees, are all that can be desired.

Nevertheless, such artificials have, as Dr. Wagner recognises, the drawback that they do not tend immediately to the enriching of the soil with bacteria, many of which play an important, though as yet obscure, part in evoking soil-fertility. He therefore recommends the use of "purin" or manure drainage water, which is too often allowed to soak away from the manure heap. Where this material is available, Dr. Wagner recommends that it should be used, during autumn and winter, in such a way that it can reach the roots. For this purpose, numerous holes are made over an area of the soil somewhat larger than that occupied by the spread of the branches of the trees. Into these holes, about 18 inches or 2 feet deep, the waste liquid from the manure heap is poured, and the holes are then covered over with soil. Since the manure water, though fairly rich in nitrogen (2 per cent.) and potash (4.6 per cent.), is poor in both phosphoric acid and lime, it should be supplemented by an artificial manure such as basic slag, which contains both these substances. This material is spread or dug in during the autumn and, as is well known, produces its effects for several years.

In dealing with the reforms which he would recommend in the organisation of horticultural exhibitions, M. Maurice L. de Vilmorin advises the more frequent arrangement of conferences and lectures. He points out that on the occasion of such shows, horticulturists assemble in considerable numbers, and suggests that advantage might be taken of this fact to put before them recent advances in knowledge, and also, where necessary, to provide them with information with respect to the life-processes of plants, the resources of local and other markets, matters of transports, the advisability of co-operation in the marketing of produce, and so forth. He is also strongly in favour of introducing classes in the prize list for produce put up in attractive, marketable form. Our space, however, will not allow us to deal further with the large amount of material with which the report provides us. We have said enough to demonstrate the variety of the subjects which it comprises, though we hope that opportunity may arise for us to deal with certain of the many other matters dealt with in the report.

In conclusion, our thanks are due to the authorities of the Brussels Exhibition for providing us with such an excellent résumé of the papers contributed to the Conference.

One thing is clear from the perusal of this report, and that is that we in this country must lose no time in organising in an efficient manner the conferences and discussions to be held in connection with the forthcoming British International Exhibition. Such conferences, if they are to be of value, can neither be improvised nor arranged at short notice. It is much to be desired that the committee responsible for the arrangements in connection with what must be our greatest horticultural exhibition should appoint without delay a special and powerful sub-committee to take over this work. We shall not fail to impress our visitors with the excellence of our

cultivation; but we should aim also at learning from them—and we have not a little to learn on many matters—including especially the application of science to horticulture.

Further, and this is all-important, it is not only necessary to make early arrangements for the contribution of papers by experts in the several departments of horticulture. Still more is it necessary to secure for the subjects presented by the experts an adequate and serious discussion. Without such discussions, congresses are apt to degenerate into picnics; pleasant enough, it may be, for the partici-

HIPPEASTRUM CALYPSO.

For upwards of 50 years the Westonbirt strain of *Hippeastrum* has taken the foremost place. In the time of the late Robert Stayner Holford all the known species were grown at Westonbirt, and great improvements made by hybridisation. Lieut.-Col. G. L. Holford, C.I.E., C.V.O. (gr. Mr. Chapman), took up energetically the work which his father had so well commenced and raised some marvellously beautiful novelties, each section being worked to the highest state of perfection. The self colours, and especially the brilliant scarlet and crimson shades,



(Photograph by John Gregory.)

FIG. 122.—HIPPEASTRUM CALYPSO: ROSE-VEINING ON A WHITE GROUND.

(Received an Award of Merit at the meeting of the Royal Horticultural Society on April 19.

pators, but of little value for those outside the inner circles of horticulture. There are many subjects on which science and practice are undecided. Let several, but not too many, of the most pressing of these subjects be chosen for discussion and let the advocates of rival theories be invited—at not undue length—to present and maintain their several views. Then the meetings of the Congress will become, not barren, but fertile in results.

took the lead for some years, but lately those of pure white, or with white grounds tinged and veined, such as the variety *Calypso* illustrated in fig. 122, have been developed. The fine group shown at the Royal Horticultural Society, April 19, which secured a Gold medal and Cultural Commendation, was the finest yet staged, especially with respect to light and new colours. *Calypso* has delicate rose markings on a white ground, and, with two others, received an Award of Merit on the occasion referred to.

NOTES FROM A "FRENCH" GARDEN.

THE frames and lights have been removed from the Carrots and Cauliflowers to the new Melon beds. Because of the cold, unsettled weather we have had to provide temporary shelter by means of mats to the Carrots and Cauliflowers.

The cold weather is also responsible for the unsatisfactory growth of the Melons planted early in April, as no ventilation could be given, and the watering had to be practically suspended. This first batch is, however, showing fruits, and a few days of favourable weather will greatly improve the appearance of the plants. The grower must not be too hasty in the selection of the first fruits. The best are those growing on the second side shoots from the laterals, which only appear when the first shoots have been stopped at the second leaf. Artificial pollination of the flowers is not practised.

The Carrots require ample waterings. The first batch is now ready for pulling. This crop is the mainstay of the hot-beds, and is very remunerative when successful. An average crop is 90 bunches each of 45 to 48 Carrots for a row of 15 lights.

The success of this crop largely depends on the condition of the soil when making the hot-beds, the clearance of the Lettuces at the proper time, and the ventilation and watering processes, both before and after the removal of the glass.

Carrots sown among the cloches do not provide such a plentiful crop, owing to the rearrangement of the cloches being necessary at different periods of their growth.

The Turnips, sown in the middle of March, will be ready for pulling within 10 or 12 days. The lights have been removed during the day-time, whenever the weather has permitted: these will be used in a few days for the last batch of Melons.

The soil has been kept damp to obtain a quick growth. Old practitioners do not appreciate this crop, which furnish as good profits as the Carrots, but the grower loses his crop of Cauliflowers which is planted among the Carrots in the middle of March.

The second batch of *Cos* Lettuce is now ready for marketing, and will be cleared in the shortest possible time, so that the cloches may be placed on the third batch. These *Cos* Lettuces are generally ready for market in 10 or 12 days after they have been covered with the glass. The cloches may now be white-washed on the south side and the mats used for the Melon beds.

Cos Lettuces, grown outside, require ample waterings, to be ready immediately after those grown on the hot-beds. Five rows of Cauliflowers are now planted amongst them in each bed, 11 feet wide.

The last of the Little Black Got Lettuces grown in the cold frames have been marketed. This crop is always profitable, the cost of production being comparatively small and the returns generally good, owing to a dearth of Lettuces late in April.

The Passion Lettuces grown under the cold system are now mature. They thrive well in the heavy clay of this district, and form huge heads. Those grown in the open will be ready within a fortnight.

Tomato plants are showing their first trusses of blooms in the nursery beds. If shelter can be provided during frost, the frames and lights employed for the Tomatos may be utilised for the Ridge Cucumbers in 60 pots: these will be planted outside late in May, when cloches will be available for their protection.

The final sowing of Cauliflowers has been made this week. The seedlings will be planted in the open in the Melon beds in July. This crop has not been remunerative during the last three years, owing to large consignments being received in the market from the ordinary field-grown crops. *P. Aquatias*.

TREES AND SHRUBS.

PTEROCARYA.

PTEROCARYA is a small genus of Asiatic trees, all the species of which are of decorative value by reason of their long, pinnate leaves. Nine species are enumerated in the *Index Kewensis*, but few of them are in general cultivation, whilst no single species can be said to be common. Unfortunately, some, being tender, are only suitable for cultivation in the warmer parts of the country, for, like the Walnuts, they commence to grow early, and are sometimes injured by late frosts.

One species only was described by Loudon, whilst, until quite recently, three or four species alone were known. During the last 15 or 20 years, however, several Chinese species have been introduced.

The genus is closely allied to *Carya* and *Juglans*, the points of resemblance being apparent in the stalked buds and pinnate leaves. The fruits, however, are quite different, as they are small, borne in long, pendulous catkins, and each is provided with a pair of wings, except in one species, where a single wing is continuous round the seed. They are also much smaller than those of the other genera, and are of no economic value.

Under cultivation, little opportunity has occurred of obtaining information as to the dimensions they will attain, for of one species only have trees been planted long enough to grow to maturity. In their native habitats they are stated to grow to a height of from 30 to 60 feet, but, under favourable conditions, two or three species have been recorded 100 feet high, with trunks several feet in diameter. In China, some of the species are planted in towns for the sake of their ornamental foliage. Their decorative qualities, however, appear to be their only asset, for, though the timber of one or two species is utilised, it is only of value for rough work.

All thrive in loamy soil, and they prefer a moist situation, such as the bank of a lake or stream, where they can stand clear of the water, whilst their roots obtain a constant supply of moisture.

The species given in the *Index Kewensis* are as follow:—*P. caucasica*, *P. hupehensis*, *P. paliurus*, *P. delavayi*, *P. japonica*, *P. rhoifolia*, *P. macroptera*, *P. sorbifolia*, and *P. stenoptera*.

P. CAUCASICA (C. A. Meyer) forms under cultivation a round-headed tree, often 35 to 50 feet high, but, under favourable conditions, attains much larger dimensions. The pinnate leaves differ greatly in size according to the age or vigour of the tree. They are sometimes about 9 inches long, composed of seven to nine more or less oval leaflets, but more frequently they are considerably larger, and sometimes exceed 2 feet in length, with from 17 to 23 leaflets. The male flowers are borne in rather short spikes, but the female blossoms are in long, pendulous catkins, sometimes $\frac{1}{2}$ feet in length. The fruits are borne close together and consist of small nuts with two more or less oval wings. Good-sized examples exist in some parts of the country. The largest one, noted by "Elwes and Henry" in *Trees of Great Britain and Ireland*, vol. ii., p. 441, is in the Earl of Ilchester's garden at Melbury, Dorsetshire. This is 90 feet high, with a girth of 11 feet. A fine example exists at Claremont Park, Esher, and another one at Sion House, Isleworth. The largest at Kew is in the vicinity of the main entrance. Several names have been applied to it, such as *Alnus*, *fraxinifolia*, *pterocarpa*, *Spachiana*, and *Juglans fraxinifolia* of Poiret. It is a native of the Caucasus and Orient, and was introduced about a century ago.

P. DELAVAYI.—Little is known of this Chinese species, which was described by Franchet and named in honour of Father Delavay, who discovered it in Yunnan. It is described in the *Journal de Botanique* for 1893, p. 317 and is

apparently very closely allied to a new species of recent introduction, *P. hupehensis*, the chief point of difference, according to Mr. Skan, who described the latter species, being that *P. Delavayi* has hairy fruits whilst the other has not. Mr. Wilson informs me that it is not likely to prove hardy in England.

P. HUPEHENSIS.—A description of this species by Mr. Skan may be found in the *Journal of the Linnean Society*, vol. xxvi., p. 493. It is found in Hupeh, where it forms a tree, I am informed, from 30 to 70 feet in height, with a spreading, bushy head. Herbarium specimens show leaves with seven to nine leaflets which appear to be more hairy than many of the species along the veins, and in the vein axils. The fruits are glabrous, in long spikes up to 2 feet in length, and the wings are large and rounded. It was introduced to England in 1903 by Mr. E. H. Wilson when collecting for Messrs. Veitch, and plants may be seen in the Coombe Wood Nursery of that firm.

P. JAPONICA.—This species does not appear to be in cultivation. It was described by Dr. Dippel and a portion of a leaf is figured in *Handbuch der Laubholzkunde*, pp. 329-330, fig. 151. From the leaf it appears to bear a resemblance to *P. stenoptera*, the rachis in both instances being winged.

P. MACROPTERA (Batalin).—This is a Chinese species, with large leaves, composed of 11 or more leaflets, the largest being about 6 inches in length and 2 inches in width, oval in shape and finely and regularly serrated. The leaf-stalks and principal veins are covered with a brownish pubescence which forms tufts in the vein axils. The wings of the fruit are large, being half an inch to an inch wide and almost as long. It is said to grow from 20 to 35 feet high.

P. PALIURUS (Batalin).—This species is one of the most interesting when in fruit, for the fruits are very similar in shape to those of the "Christ's Thorn" (*Paliurus australis*), the seed being surrounded by a broad wing. The whole fruit often measures $1\frac{1}{2}$ to $2\frac{1}{2}$ inches across. The leaflets are frequently nine in number, but this varies. They are about 4 inches long and $1\frac{1}{2}$ to 2 inches wide, oval in shape with serrate margins. The female inflorescences are about a foot in length. It is said to grow from 30 to 70 feet in height, and seems to have been first noted by Dr. E. Faber in 1893 in the Ning-po Mountains and subsequently by Dr. A. Henry and Mr. E. H. Wilson, the latter of whom sent seed to Messrs. Veitch in 1903, from which plants were raised. A figure of a fruiting specimen may be seen in the *Journal of the Royal Horticultural Society*, vol. xxviii., p. 65, fig. 26.

P. RHOIFOLIA.—This species was originally described by Siebold and Zuccarini, the description and an accompanying figure appearing in their *Flora Japonica*, t. 160. Although it has been in cultivation for about 20 years it is doubtful whether it is to be found in more than two or three collections. Young trees about 15 feet high are to be found at Kew. Professor Sargent found it growing on Mount Hakkodo at an elevation of 2,500 to 4,000 feet, whilst Mariés appears to have sent seeds to England. It is said to grow from 40 to 80 feet in height. The leaves are composed of 15 or more oblong, acuminate leaflets, the terminal one in each case being considerably larger than the others. The undersides of the leaves are pubescent, especially in the axils of the veins. The wings of the fruit are broad, about half an inch across, and the catkins are upwards of 15 inches long.

P. SORBIFOLIA is described in Siebold and Zuccarini's *Flora Japonica*, but never appears to have been introduced into English gardens.

P. STENOPTERA.—This was named by C. de Candolle, and it seems to have been first collected about 1868. Most Chinese collectors since that time have found it, whilst Wilson appears to have discovered a much hardier form than the

one originally introduced. It is a very variable species, growing in different places from 20 to 100 feet in height, whilst the leaves differ considerably, some having but seven or nine leaflets whilst others have as many as 25. The leaflets in some instances are very small, whilst in others they are 5 inches long. It can, however, be distinguished by means of the winged rachis. The fruits are in catkins a foot or so long, and the bracts are lanceolate, and somewhat like those of *P. caucasica* in shape. It is planted as an ornamental tree about Chinese towns and thrives most luxuriantly in the vicinity of water. *W. Dallimore*.

VARIATIONS IN THE FLOWERS OF TULIPA.

DEPARTURES from the normal structure in the flowers of cultivated plants are of frequent occurrence. Most gardeners have observed divergences from the normal in some flower or other, but, unfortunately, many which would have proved of interest to botanists and horticulturists have not been put on record.

It was by a close study of these "sudden variations" or "sports" and their comparison with other forms which first led to the belief in the origin of species by mutations. It also led Masters, Celakovski, Peyritsch and others to the foliar theory of stamens and carpels, and furnished Darwin with material for investigation.

Comparatively little is known of the real causes of these deviations from the normal structure. In those cases which have been carefully investigated, they have been shown to be due to peculiar nutrition, insect or fungus attacks or, in some cases, mechanical injury.

The following variations were noticed in a batch of about 100 Tulips growing in the Chelsea Physic Garden. The plants were reared in a cold frame and brought into a warm house during the flowering period.

The terminal flower of the Tulip consists normally of six perianth leaves, six stamens and three carpels. Out of 80 plants examined, 58 had perfectly normal flowers, their floral formula being represented by P. 6, A. 6, G. 3; the remaining 22 plants had flowers which were abnormal in one or more respects. Of these 22, two were pentamerous with respect to perianth and stamens, but with trimerous carpels. Others were classified as follow:—

P. 5, A. 8, G. 3	1 flower.
P. 6, A. 5, G. 3	2 "
P. 6, A. 8, G. 3	1 "
P. 7, A. 6, G. 3	3 "
P. 7, A. 7, G. 3	7 "
P. 8, A. 4, G. 3	1 "
P. 8, A. 6, G. 3	1 "
P. 8, A. 8, G. 3	1 "

These variations do not call for any special comment, but it will be noticed that an increase in the number of the perianth leaves does not necessarily mean a corresponding reduction in the number of stamens, a correlation which is commonly seen in other plants. It will be further noticed that the number of carpels remains constant throughout the whole series. This is in agreement with previous observations, which show that phyllody of carpels is a much rarer phenomenon than phyllody of stamens.

What appears to be quite an interesting point is the appearance of a bract in a large number of the flowers. Of the 22 abnormal flowers, 12 showed the bract at various phases of its development. In some cases, one of the perianth leaves appeared to be inserted on the peduncle some little distance below the level of the remaining perianth leaves. This perianth leaf was in no way different from the others in colour, texture or appearance, but had apparently been "shifted" a little way down the peduncle. In other cases, the bract was a considerable distance below the insertion of the other perianth leaves, whilst it was also less petaloid and more bracteate in appearance. In extreme cases the bract was

6 or 7 centimetres down the peduncle, had entirely lost its petaloid appearance, and had become yellow and membranous.

What is this bract? Is it a perianth leaf which has been left behind in the development of the flower, or is it a foliage leaf functioning as a bract? I believe it to be a perianth segment, because full-grown plants of the Tulip were never found to have more than three ordinary foliage leaves or less than three in the case of plants with the "bract." Further, when a flower had more than six perianth leaves, one of that number showed a distinct tendency to become shifted down the peduncle, and in no case, where a plant had only six perianth leaves, was there any tendency for one of them to be shifted down the peduncle. If the bract had been a transformed foliage leaf, I should have expected to find some departure from the normal number of three leaves, which condition was never seen in any of the plants examined.

There is no clue as to the factors which brought about these variations, but it might be mentioned that in a few cases it was noticed that the anthers of some of the flowers were infested with the mycelium of a fungus. *T. Reed, Chelsea.*

NOTICES OF BOOKS.

GARDENING FOR THE MILLION.*

As the author, presumably an amateur, states in the preface, "it is with the object of stimulating the cultivation of gardens still more beautiful than those generally to be met with that the present volume has been written. That the work may prove useful to those at least who supervise their own gardens is the sincere wish of the author."

Doubtless it will do that and more, if it engender a love of plants and of work among them. The book is written with knowledge conveyed in the fewest words, yet clearly, and treats of plants as diverse as "the Hyssop" on the wall and "the Oak on the mountains." The matter is remarkably free from technical terms, the type is well spaced out and clear. While it is called a book for the million, it is an all-embracing million, the well-to-do as well as the cottager, for in it we come across sundry remarks on species of exotic Orchids. The book is not concerned with flowering plants only, but useful remarks are inserted with respect to the better class of vegetables, ornamental trees and shrubs. The compost heap comes in for a useful note on p. 68.

BEES FOR PROFIT AND PLEASURE.†

THIS book has evidently been written by one who has a thoroughly practical knowledge of the subject. The introductory chapters deal, among other things, with the profits that may be expected from successful beekeeping; but we think that the estimate of 20s. per colony is rather more than is likely to be generally realised.

The natural history of the bee is dealt with, and although the information is condensed, it is very clear and concise for a subject of such infinite complexity and interest. Useful hints are given on such subjects as choice of locality, manipulation of bees, and the general management of the apiary.

The chapter devoted to the "Wintering of Bees" is of great value, as this is a detail which is apt to be overlooked by many beekeepers, and is a fruitful cause of disappointment. Valuable information is given on the feeding of bees at different seasons, the reasons for the differences being clearly explained. There is a useful calendar and several good recipes for the uses of honey as food.

* By Alfred Pink, author of *Recipes for the Million*. Popular Edition, pp. 266, crown 8vo. Published by T. Fisher Unwin, 1, Adelphi Terrace, London.

† *Bees for Profit and Pleasure*, by H. Geary. Edited by T. W. Sanborn, F.L.S. (London: W. H. & L. Collingridge. 1s. net.)

THE ROSARY.

CULTURAL HINTS FOR MAY.

ANY shoots that have been injured by cold winds or frost should be cut back to sound wood: the Tea-scented, Noisette, and China Roses have been affected chiefly. If this has not already been done, budded shoots on the standard and dwarf Briars may now be shortened to one eye above the bud. The buds are beginning to push into growth and will require constant atten-

May is the most critical month for Rose cuttings, and some attempt should be made to shade them from the strong midday sun, as their roots are not numerous enough to support the top growths. Those that have been planted at the back of a north hedge will not need this protection. The Rose maggot will soon be active among the shoots; the pest should be picked off and destroyed; afterwards cleanse the plants well with warm, soapy water. The brown weevil also infests the standard Briars about this time, eating off the young shoots at night-time.



FIG. 123.—GARDEN DESIGN COMPETITION FOR UNDER GARDENERS.

(The First Prize Design.)

(See p. 213.)

tion in tying and staking as growth proceeds, to secure them from injury by the wind. The sticks should be of sufficient length to allow for extension of growth.

Buds on the Manetti, seedling Briar, and de la Griffere stocks will also require attention; the head of the stock should be cut back when the bud has started, and removed altogether when it has developed from six to 10 leaves.

Rose and Briar cuttings planted during the autumn and winter should be given water whenever the weather is dry, and be heavily mulched.

The seedling Briars are appearing through the ground. The soil, if at all dry, must be well watered, and light hoeings made between the rows.

There have been the usual losses this winter amongst tender varieties, and they should now be made good, employing pot plants for preference. See that the roots are moist when they are turned out of the pots, and, in planting, employ some fresh, turfy loam mixed with bone-meal, to give the plant a good start. Liquid manure and soot-water may be given to actively-growing

plants on two or more occasions weekly. The stimulant should be well diluted when used for pot plants, and even those planted out must not have it at too great a strength. The soot should be placed in a bag, which should be dropped in the tub with the manure water.

As the new growths appear on the established plants, thin out those that are weakest and likely to cause crowding, as it is important that sunlight and air reach the centre of the head.

The last batch of pot Roses placed under glass are growing freely, but the east winds have brought in their train a host of insect pests, and measures must be taken at once to destroy them. Fire-heat will not be necessary, but the house should be closed early in the afternoon, to maintain the requisite temperature. Pay careful attention to feeding and watering the plants, and also to the ventilation of the house. As the flowers expand, keep the atmosphere drier. Showery weather will afford a good opportunity for inserting buds on the most forward of the transplanted seedling Briars; also on any stocks where the buds failed last year. The forced pot plants, that have been placed outside, will furnish an abundance of shoots with suitable buds.

The potting of plants grafted during the current season should now be completed; they are growing freely, and will do best in a light, cool, well-ventilated house. Towards the end of this month or early in June they may be hardened off, and, later, plunged outside in beds at 1 foot apart. Spring-rooted cuttings should be afforded larger pots as may be required, placing them in a warm frame until they are re-established, with a little shading during bright sunshine. Fresh air should be afforded gradually, until, as the growth and season advance, they may have an abundance. Roses planted out under glass may have the shoots cut back to one-third of their length. Keep the atmosphere of the house humid by syringing, but do not afford root waterings until the bushes show signs of breaking afresh, which will probably occur in two months from now. When active growth begins, they will require a good soaking of water and plenty of liquid manure. The variety Belle Lyonnaise, of the Gloire de Dijon type, makes an excellent climber for the roof. The flowers are of a rich primrose colour. I have a three-quarter span-roof, cold house, facing south, planted with this variety. The growths have covered the roof both on the north and south sides. Several hundreds of fine buds have been cut from the south side, and the great quantity of buds developing on the north side will carry the crop to Whitsuntide and later. J. D. Godwin.

LANDSCAPE GARDENING COMPETITION.

THE schedule of the Royal Caledonian Horticultural Society's recent spring show included a competition, open to under gardeners, for laying out as a pleasure ground and kitchen garden a piece of ground of about 16 acres in extent. A sketch plan of the site was furnished in the schedule, as shown in fig. 124, and the competitors were required to fill in the necessary details. The elevation of the ground was indicated by dotted contour lines, and the surroundings, as shown in the sketch, were required to be duly considered in any scheme submitted. In fig. 123 is reproduced the 1st prize plan, by Mr. J. W. Forsyth, Rosdhu, Luss, Loch Lomond.

Mr. Forsyth has made provision for glass-houses, fruit range, bothy, potting sheds, gardeners' cottage, stable and laundry. The pleasure grounds include a bog and water-garden, rosary, rock-garden, and Lily-pond, the details of all of which show that the designer possesses a good knowledge of their several requirements. Such competitions provide a pleasing change from the ordinary classes in a flower show schedule, and have great educative value, in affording a real test for skill in landscape gardening and draughtsmanship. In a similar competition last year Mr. Forsyth gained the 2nd prize.

THE FERNERY.

LASTREA MONTANA.

(THE LEMON SCENTED BUCKLER FERN.)

FEW Ferns have a pleasant fragrance, and some, such as the exotic *Adiantum Sancta Catherine*, which has such a strong feline smell as to be unbearable in a room, are decidedly objectionable. Two of our English species, however, are exceptions, *Lastrea æmula*, the Hay-scented Fern, which possesses a scent more like that of the Tonquin Bean than of Hay, the odour being given out by the dead fronds for a very long time; and *L. montana*, the lemon-like perfume of the fronds of which is due to an essential oil contained in innumerable surface-glands. The latter Fern, despite its perfectly hardy nature and robust growth, is very rarely seen in cultivation, though it lends itself readily to pot culture and does well in an open, loamy, lime-free soil in not too dry positions. In form it resembles *Lastrea Filix-mas*, the common Male Fern, but its fronds are of a lighter yellowish-green and are provided with side divisions from the base, where they appear as rounded lobes for some inches up, and then lengthen to form, with a tapering tip, a graceful, lance-shaped outline. In the Male Fern the stalk is bare for some inches up, where the side divisions,

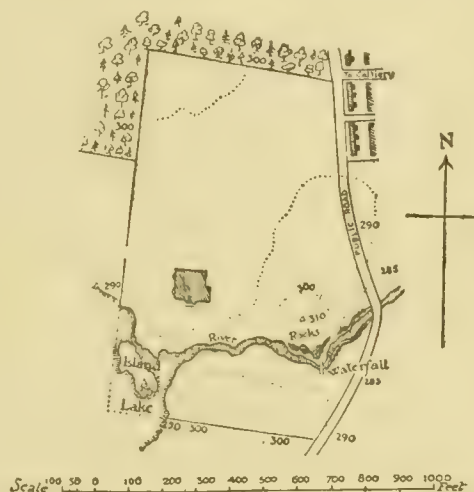


FIG. 124.—GARDEN DESIGN COMPETITION FOR UNDER GARDENERS.

(Sketch plan as furnished to the competitors.)

an inch or two long, begin abruptly. The spore heaps, too, are much smaller and dot-like than the comparatively conspicuous ones of *L. Filix-mas*. When the fronds rise in the spring a further specific difference is noticeable, since the tips of the fronds of the Male Fern, when uncoiling, droop forwards so as to resemble a crozier, while those of the Lemon-scented Fern maintain a ball-like shape, the tips of the subdivisions protruding all around in a spiky fashion, reminding one of Magog's spiked ball. A fourth differentiating character is the odour. *L. montana*, as its name implies, is found more plentifully on hillsides up to a considerable elevation, colonies of it lining the rocky banks of mountain streams or occupying rocky, broken areas in the open or on similar ground in the shelter of wood. It is, however, by no means confined to hilly districts, as I have found plants in Epping Forest, in several parts of the Weald of Kent, and in Tilgate Forest, in Surrey, in which latter place it was growing in profusion under the shelter of bold-growing Bracken; quite an exception to the usual rule of Bracken monopolising the soil. In the early days of Fern hunting, *L. montana* for a long time had the reputation of being peculiarly constant and non-labile to sporting, but eventually one or two good forms being discovered, some of the hunters, and particularly Mr. J. M. Barnes, of Milnthorpe, in

the English Lake country, and others, devoted particular attention to this species, which is very abundant there, with the result that a large number of distinct and striking varieties were obtained. Mr. Barnes succeeded in raising some improved forms from his wild finds, bearing heavy tassels at the tips and even branching fronds. Several years ago I found a good plumose or extra feathery form in Kendale, and, curiously enough, in the following year a thoroughbred "grandiceps," or heavy bunch-crested variety, was found on the same hillside within a hundred yards of the site of the plumose discovery. A curious, truncate variety appears to be discoverable in most localities where the common form prevails. This has the ends of the fronds and their side divisions abruptly squared, the shortened midrib projecting as a slender thorn, the outline appearing as if the frond had been trimmed off with scissors so as to form a parallelogram. Sometimes such fronds occur singly on an otherwise normal plant, but plants so characterised throughout are by no means rare. The Fern is quite deciduous, the fronds dying down in the autumn and appearing about the end of April. It does well in a cold conservatory, potted in good yellow loam with a dash of leaf-mould. Propagation by spores is not easy, and few succeed, since in the young stage the prothallia seem to require fresh moisture, and plenty of it, a condition not easily secured under artificial conditions. In well-established plants, with a good root-stock or caudex, a piece of this severed from the base, or oldest portion, and kept close under a glass jar, or tumbler, on wet sand, will produce young plants freely from induced bulbils or rather short stolons. The plant must not be allowed to suffer from drought, and in the winter, when the fronds are dead, the best plan is to plunge the pots into damp cocoanut fibre and put them out of sight until the spring, seeing, of course, that the fibre does not dry out entirely. Restored to their places in April, they will soon start into growth and resume in a week or two their full beauty. *L. m. cristata*, *ramo-cristata*, *grandiceps*, *cristata-gracile*, *Barnesii*, *ramo-coronans*, *plumosa Airey*, *plumosa Whitwell*, and *congesta* are all charming plants. Chas. T. Drury, V.M.H.

COLONIAL NOTE.

MEALY BUG ON VINES.

I HAVE from time to time read notes in the *Gardeners Chronicle* about means that are taken in the Old Country to clear vines of mealy bug. The general practice amongst gardeners here for clearing bug on such pot plants as will stand the treatment is to apply, at a good pressure, a stream of clean water. The plant is placed on its side in the vicinity of a drain, and as the hoseing proceeds, the bug is carried away floating on the water. The operator must gauge the pressure so that the foliage is not damaged. The following plan was adopted in our vineries:—After pruning the vines, the bark was taken off, and any holes that might harbour eggs or bug on the canes sealed up. The vines were then suspended from the roof of the structure with a single string tied about the centre of each cane. The old top-dressing of the borders was scraped off and cleared out, and then the hose was applied at the highest pressure, starting at the top of each cane and working down each side. All wood, glass, and brick work were thoroughly treated in this manner, and, to finish up, the border was drenched with water, so that any bugs that might have been missed in the soil floated out and were carried away by a drain. It is now three years since I first tried this treatment, and since then I have not seen a single mealy bug in any of our vineries. John W. Blackburn, Louisa Gardens, Toorak, Melbourne, Australia.

THE ALPINE GARDEN.

PRIMULA ANISIACA.

PROBABLY few people are ever likely to know this *Primula*, which is one of that ridiculous series intervening between *P. veris* and *P. vulgaris*—all the members of which have long, glorious and unknown names that lure one into buying their bearers as exciting novelties. However, *P. anisiaca* seems to have its value. I had seed of it some years ago from St. Petersburg, I think, and the three resulting plants were put out in disgust, when I realised what they were, to take their chances on the rockwork. All three formed strong clumps, and all three behave differently. The best form is conspicuous by bursting into a perfect mound of blossom by mid-February, at a time when decent *P. vulgaris* is still sound asleep; otherwise, at this stage, and except for the enormous floriferousness of *P. anisiaca*, the plant has little to distinguish it from *P. vulgaris*, unless it be that the flowers are rather paler, thinner, starrier and more exquisite; besides, as I say, being produced in such abundance as to make the whole plant one apparently leafless hill of blossom. Nor does this lavishness fade with time; at this moment, April 24 (in a blinding snowstorm, by the way), *P. anisiaca* is still in flower as reckless as ever. Only, by now the scapes have lengthened and grown apparent; so that the plant at present is closer to *P. elatior*. The other clump of *P. anisiaca* was much later in blooming, and, from its first bud, has been much nearer to *P. elatior* all through. The third clump has not yet condescended to flower. Another species of the same race, it would seem, is *P. pannonica*; but one hardly has heart to do justice to such seedlings when one realises that, instead of some new rival to *P. Berninae* or *P. Cottia*, one has merely acquired a few more versions of the common Oxlip.

SAXIFRAGA FALDONSIDE.

SIR EVERARD HAMBRÖ'S magnificent clump of *S. Boydii* prompts me to a note of inquiry as to *Boydii*'s twin, *Faldonside*. What is the precise parentage of this? Both are children of burseriana and the early-flowering yellows. Both, apparently, have the same repulsive weaknesses of constitution. At least, just at flowering time, the plants have a tendency here to grow lanky and dishevelled in habit, brown and livid in leafage. After which they sink into the tomb, from which no treatment I have yet devised seems able to save them. I imagine that *Boydii* gets this tendency from *S. aretioides*, but in justice to *aretioides*, I must confess that, though undoubtedly tricky, it is not so inevitably capricious as *Boydii*. Has anyone arrived at a final solution of this plant's riddle? As to *Faldonside*, I myself consider this more beautiful than *Boydii*, as the tenderness of its pale lemon blooms appeals to me strongly. But I get no prolonged happiness out of its clumps, not even by pulling them to pieces when they go wrong. On the other hand, *S. Cherrytrees* continues, in all circumstances, to grow cheerfully and robustly into wide masses. But *S. Cherrytrees* has never yet shown signs of a flower.

TWO GOOD NEW SAXIFRAGAS.

SAXIFRAGA OPPOSITIFOLIA LATINA is, I believe, a form collected from the mountains of Southern or Central Italy. It has no startling divergence from *oppositifolia* type, but is very solid and steady, being, both in growth and flower, a robust and healthy form. The flowers are very large, well-produced, round in outline, and of a good vivid tone in what, after all, is a rather unfortunate range of colours, for *S. oppositifolia* is certainly marred in almost all its forms by the inevitable magenta taint; and we are still eagerly longing for a good, round-flowered white variety—the present albino being a worthless thing, to my thinking, so thin and starry as to be more like a poor *Arenaria verna* than any other proper and well-liking *oppositifolia* *Saxifraga*. On the other hand, *S. oppositifolia speciosa* is a very distinct novelty indeed. Its growth and foliage are far bolder and stouter than any others of its race, and the flowers, besides being of enormous size, are of a tender pale rose, in which the magenta is refined away to a minimum. Further, they have six, seven or even eight petals, instead of the usual five; and this multiplicity of division makes the great blossoms, as they lie on

the grey moraine, look like wide blooms of *Ranunculus Kernerii*—for both these *Saxifragas* are highly recommendable for the moraine; so far their only fault with me has been a certain shyness in flowering, but this I attribute solely to the fact that their present situation is rather dank and shady. Other plants, on a new and sunny piece of moraine, will give me, I hope, a more brilliant mass of bloom. *Reginald Farrer*.

WORMS IN A CORNISH GARDEN.

IN spite of the fact that 30 years have gone by since Darwin wrote his remarkable volume on *Vegetable Mould and Earthworms*, it still remains a fact that no systematic effort has yet been put forth in this country to ascertain what species of worms produce "vegetable mould," to master their geographical distribution, the nature of the soils on which they operate, and the many other problems which the subject involves. If anyone were asked, How many different species of worms are there in England? Which of these live in gardens? What is the service they render? Are they beneficial or injurious? who could give us the answer? Does any zoologist, biologist, professor, gardener, farmer, or any other authority know what worms prefer loam, clay, manure, leaf-mould, chalk, lime, or any other kind of soil or situation? Can anyone tell us whether we introduce useful or dangerous worms when we bring mould from the roadside, the moor, or the woodland? When stable manure is taken hot into the garden, is any species of worm introduced which differs from that or those which occur in very old heaps? How far is the growth of vegetables, flowers, fruit trees, or shrubs affected by the annelid fauna? These are a few of the subjects which have not been generally or systematically studied in England, and I have therefore given my leisure for some years to their consideration. In this article I propose to open up the matter for the guidance of gardeners and others, to whom it is a subject of considerable importance.

Some years ago an article of mine led certain readers of this journal to make observations on garden annelids, and my recent studies in *New Garden Worms* published in these columns have revived their interest. As a result, I have been favoured with collections of garden worms from various parts of the country, and am giving in the present paper the returns for a particular locality in Cornwall. I choose this county chiefly on the ground that, so far as I am aware, no attempt has ever yet been made to tabulate the Cornish earthworms, and, until I began the study, not a single authentic record had been put before the public generally. I do not know that any local natural history or other society has ever attempted to compile a list.

On February 11 of the present year, Mr. A. C. Bartlett, of Pencarrow Gardens, sent me a consignment of worms from the heaviest land in the kitchen garden. He took the precaution to collect all the individuals he came across, "feeling," as he acutely remarked, "that their relative preponderance would be of interest." And so it proved. The so-called earthworms were conspicuous by their absence, while a species which has only within the past few years been recognised as British was the predominating form. This suggests two inquiries at the outset. First, are certain species of worms more or less limited to certain soils? And, secondly, does the presence of one strong type mean the expulsion of another? These are new and all-important problems, and upon the answer vital issues depend for the horticulturist. Here is the tabular return:—

Fifty garden worms from heavy soil, Pencarrow, Washaway, February 11, 1910:—

<i>Lumbricus terrestris</i> , L., or true earthworm	1
<i>Allolobophora longa</i> , Ude., long worm	3
<i>Allolobophora caliginosa</i> , Savigny	4
<i>Aporrectodea chlorotica</i> , Sav., green worm	6
<i>Eisenia rosea</i> , Sav., mucous worm	6
<i>Octolasion studiosum</i> , Rosa	30

The last species is a strong worm, of a steel-blue colour, with bright yellow tail and orange yellow girdle. From the tail and the glands in front of the girdle a yellow liquid is exuded. The girdle extends over six segments, as in the true earthworm, and there is a peculiar band on four

segments, known as the tubercula pubertatis. It may be well to give the numbers of the segments for the three larger species, because they are continually being mistaken the one for the other. The upper row of figures shows the position of the girdle, while the lower represents the tubercula:—

<i>Lumbricus terrestris</i> , L.	32 — 37
	33 — 36
	28 — 35
<i>Allolobophora longa</i> , Ude	32 — 34
	29 — 34
<i>Octolasion studiosum</i> , Rosa	30 — 33

When the colour and shape of the head and tail are compared with the girdle and tubercula, it is impossible to confuse one with the other.

On February 18, Mr. Bartlett sent me two further consignments, and the results were equally remarkable. A box filled with specimens taken from dung in the bottom of a Celery trench contained 140 specimens. These were of three kinds, and the numbers were as follow:—

<i>Octolasion studiosum</i> , Rosa	10
<i>Eisenia rosea</i> , Savigny	30
<i>Eisenia foetida</i> , Sav. (Brandling)	100

Thus we find the latter to be the predominant species in manure.

The other box contained about 80 specimens, and was filled with species taken from a leaf heap which had been decomposing for a year or so. Here, again, I found much to ponder over. In many parts of the country such a heap would yield the gilt-tail (*Dendrobæna subrubicunda*) in large numbers. Here that species hardly existed, but its place was taken by an ally, which has only recently been recognised as British. I refer to *Eisenia veneta*, Rosa, about which I wrote in this journal last year (*Gardeners' Chronicle*, October 9, 1909). I am not sure whether it may not have to be entered as a new variety; but of this it is not necessary now to write. The box contained odd specimens of some of the foregoing, together with the following additional species:—

<i>Dendrobæna subrubicunda</i> , Eisen.	3
<i>Lumbricus castaneus</i> , Savigny	3
<i>Lumbricus rubellus</i> , Hoffmeister	4
<i>Eisenia veneta</i> , Rosa (? var. nov.)	60

Thus, out of some 270 specimens, no fewer than 240 belonged to four species, the remaining 30 being distributed among seven or eight other species. They stand thus, and the list may be taken as a basis for further Cornish records:—

1. <i>Lumbricus terrestris</i>	1
2. <i>Lumbricus castaneus</i>	3
3. <i>Lumbricus rubellus</i>	4
4. <i>Allolobophora longa</i>	4
5. <i>Allolobophora caliginosa</i>	4
6. <i>Dendrobæna subrubicunda</i>	4
7. <i>Aporrectodea chlorotica</i>	5
8. <i>Octolasion studiosum</i>	40
9. <i>Eisenia rosea</i>	40
10. <i>Eisenia veneta</i>	60
11. <i>Eisenia foetida</i>	100

I am content for the present to give this brief statement of facts. If gardeners in out-of-the-way parts of the country and Empire, where the soil and conditions differ, will make it possible for us to extend these analyses, we may anticipate some important results.

Worms should be placed in tin boxes, with a light padding of moss, all injured specimens being excluded. If the lids fit easily, it is better not to puncture them for ventilation, as the worms creep out and perish in the wrappings. Details relating to soil and situation are desirable. *Hilderic Friend, St. Asaph, Malvern*.

ORCHID NOTES AND GLEANINGS.

SOPHRO-LÆLIO-CATTLEYA × THALIA.

AN inflorescence of a bright and interesting hybrid, having *Sophranitis grandiflora* as the seed-parent and *Lælio-Cattleya* *Cappei* as the pollen plant, is sent by Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), who states that it was taken from a very small plant. The inflorescence is two-flowered, the nearly equal, lanceolate sepals and petals being more than 3 inches across. The ground colour is Indian yellow, surfaced with scarlet. The lip, which is the smallest segment, is crimped at the margin, yellow veined, and tinged with dark red.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PRUNING NEWLY-PLANTED FRUIT TREES.—

I am not in favour of pruning young, newly-planted Peach trees. There are always portions of immature wood at the ends of the shoots, and instead of cutting off the unripened parts, I prefer to disbud the branches down to the ripened part, leaving the disbudded portion to tie the leader to, cutting it away after the leaves have fallen. I have seen shoots of young Peach trees badly affected with gumming as the result of severe pruning. There is no necessity for bending the shoots of young Peach trees to induce them to break, as advised by H. W. W. (see p. 284). I always find they break satisfactorily without doing this. By stopping the very luxuriant growths the proper balance of the tree can be maintained. W. P. R.

FERTILISATION OF MELONS AND CUCUMBERS.

—Interesting contributions have been made to this subject by your correspondents on p. 284. W. C. C. asks whether I have ever known of a Melon which has ripened without containing fertile seeds? I have referred the question to the gardener-botanist mentioned in my former letter, as he has had much greater experience in the subject than myself, and his answer is an emphatic "No." W. C. C. asks why there is this difference between such nearly-related plants as the Melon and the Cucumber that the former develops its fruit without fertilisation, while the latter does not. My friend asserts that there is no such difference, that the fruit of the Cucumber, equally with that of the Melon, cannot grow unless fertilised, and that all Cucumbers would be found to contain fertile seeds if left on the plant long enough to mature, instead of being cut, as they usually are, for eating purposes, in an unripe condition, i.e., unripe from the point of view of the fruit. May I ask W. C. C., at what stage of their growth those Cucumbers were cut and examined for seed which developed after removal of the stigma? I am at present engaged in conducting some experiments on this subject, seeking the fullest information obtainable from various authorities. The results of my investigations I will give in a later issue. N. H. [It may safely be predicted that the results of his experiments will convince our correspondent that Cucumbers are capable of producing large fruits without pollination of the flowers. This curious habit of flowers yielding fruits without pollination occurs, for example, in the Banana, and, according to the researches of Dr. Richard Ewart, in certain varieties of Apple and Pear. An account of Dr. Ewart's experiments on the latter fruits was published in these pages some years ago (p. 316, May 18, 1907).—Eds.]

THE WEATHER IN SOUTH DEVON.—The past winter has been a mild one, the greatest cold registered being 5°, while in a garden just over the salt water the thermometer never showed more than 3° of frost. In most localities the greatest cold is experienced in the low ground, but here this is reversed, the coldest spot being at the top of the hill, while the nearer the salt water is approached the warmer it becomes. This winter we have suffered far more severely from winds than from frosts. The steep hills immediately behind us afford an absolute protection on the north and east, but the spot is open to the south and west. One night a severe south-westerly gale arose, and the next day all the foliage was brown. The crimson and white Ceanothus had not a single green leaf left, all the foliage of Bowleria Gerardiana was browned, and there was not a sign of green on Jasminum primulinum, which was in full leaf. I have a good shrub of Edwardsia (Sophora) microphylla, about 6 feet in height. It was showing over 100 bud-clusters, and the leaves were healthy and green. After the gale every leaf was brown as if seared with fire, and, when rubbed in the hand, went into brown powder. I was much afraid that the plant would be killed, but the buds continued to open, and now fresh leaves are showing all along the shoots, and the plant is in full flower. Conifers are entirely brown on the windward side, and will take some time to recover. I lost some plants from what I conclude to have been a lightning flash. Two fine specimens of the scarlet and white varieties of Pentstemon campanulatus had one half entirely killed, though the other half

was uninjured. On the other side of them Boronia megastigma and Correa cardinalis were killed outright, and a fine plant of Convolvulus mauritanicus, which made an exquisite picture falling over a ledge about 3 feet high, situated on the other side of a path in the same line, was also destroyed. All these plants were in a direct line, and I can only attribute their sudden destruction to lightning. Wyndham Fitzherbert, Kingswear, S. Devon.

HYDROCYANIC GAS.—The damage which Mr. Herridge states on page 283 was caused to the plants in the stove (when cyaniding) must have been due to a moisture-laden atmosphere, which prevented the gas from rising, thereby allowing it to condense on the plants. On April 27 I cyanided a Muscat vinery, the fruit in which had just finished stoning. I used cyanide at the rate of 1½ ounces to each 1,000 cubic feet of space, with the proper proportions of sulphuric acid and water. The temperature of the vinery was 68° at the time, but the conditions were perfectly dry. All the mealy bug in the house were killed, but I can find no ill-effects to the vines, neither has it injured a number of French Beans in the same house. I have cyanided Fig and Peach trees at all stages of growth, even when bearing a crop of ripe fruit, without causing any harm. Charles Garratt, Grange Garden, Abresford.

CORDYLIN AUSTRALIS SEEDING (see p. 251).

—Several plants of this Cordylina flowered and matured seed in these gardens last summer. Some of the seeds were sown and are now germinating. It is, I believe, considered by some to be detrimental to the health of the plant to allow it to flower, but our plants flower every year and I have not noticed any ill-effect; but I have never taken the trouble to look for seed before. A. J. Elgar, Killarney House Gardens, Co. Kerry. [Mr. D. Calthorpe, Ballyheigue Gardens, Co. Kerry, writes to the same effect.—Eds.]

A SIMPLY-PREPARED INSECTICIDE (see p. 282).

—In 1866, whilst engaged as foreman under the late Mr. Wm. Hill, of Keele Hall Gardens, I used Laurel leaves for destroying insects as described on page 282. They were first tried on a batch of Cinerarias and Calceolarias attacked by green-fly, with success. Later we used them for destroying thrips on Azaleas. An armful of Laurel cuttings laid on the brick floor was well pounded with a heavy hammer, the bruising being done quickly, so that the operator got away as soon as possible from the fumes. The old wood was very pungent when the bark was well bruised. Plants to be fumigated were placed in position on a temporary stage before the pounding took place. Azaleas and other hard-wooded plants were given the strongest doses. Some old plants of Acacia armata affected with scale insects lost their leaves after repeated doses without destroying the scale. They were placed in a shed, which was kept locked at night, the key-hole and all possible cracks whereby the fumes could escape being blocked up. Since then I have bruised a few shoots under a movable hand-glass for killing green-fly on single plants, with good effect. At the date I mention the many insecticides now used so freely were unknown, Tobacco paper being the chief fumigant. Laurel leaves may still be used on a small scale, but the operator should use gloves, and keep his face away from the fumes as much as possible. Stephen Castle, Walpole Marsh, Wiltshire.

TEMPERATURE OF THE STOVE.—I am surprised at Mr. Donoghue (see p. 247) advocating a night temperature so high as 75° in the stove at this time of the year. This is too high for a general collection of stove plants at any time of the year, except when it can be maintained with very little use of fire-heat. The season for frosts is not yet over, and to maintain a night temperature of 75° in the stove would necessitate much artificial heat, more detrimental to the well-being of the plants than a considerably lower temperature. Under such condition, and provided that the house be syringed and closed sufficiently early for the foliage to become comparatively dry by nightfall, I would prefer to keep the stove at 65° rather than 75°. Many of the plants cultivated in the stove are subject to wide fluctuations of temperature in their native habitats, a difference of from 20° to 30° being common. Plants will easily withstand the same fluctuations under artificial

conditions, provided the atmospheric condition of the house be regulated accordingly. W. Auton, Brougham Gardens, Penrith.

—Mr. Auton does not give the facts I stated. The temperatures I advised are 70° or 75°, and this advice is based upon long experience and practical observation. Notwithstanding that many stove plants are, in their natural habitats subjected to low and fluctuating temperatures, I do not agree that such treatment would be proper under artificial conditions. Mr. Auton's temperature of 65° I understand to be the maximum he would advise. At this season of the year, when the growth is of a delicate and tender nature, fluctuations of 20° to 30° would not be conducive to the production of first-class examples of stove plants. Experience has long since taught me that, in the growing of plants, fluctuations of temperature at any season are one of the evils to be avoided. In the cultivation of stove plants I advocate a short season of rest during the shortest days of the year, the temperatures at this stage ranging from 60° to 65°. The warmth should be increased gradually until the maximum of 70° to 75° is reached during April, at which time most stove plants are growing freely and require a considerable amount of heat and moisture. John Donoghue, Bardon Hill Gardens, Leeds.

OUTDOOR GARDENING.—I have been much interested on several occasions by the glowing accounts given of the prospects of gardeners in the United States, and have wished that everything was as perfect in this country. Things, however, might be much improved here if young gardeners would attend more to the outside part of their profession instead of being so wrapped up in the blue apron and Orchid-house side. There are always hundreds of applicants for indoor journeymen or foremen's places, but comparatively few for flower garden or pleasure ground work. The latter, in many places, seems to be considered the class of work for which a somewhat intelligent labourer is more fitted than the young gardener, which is a mistake. A knowledge of trees and shrubs, herbaceous and Alpine plants, and the routine of the kitchen garden seem to many young gardeners to be things they need not trouble about. They think that when they get to be head gardeners they will always have someone to look after that part of the work. This way of looking at things is wrong, as a young gardener's training cannot be considered finished if he has little or no knowledge of outdoor work. The latter can only be learnt by practice; book knowledge and theory being of little value in the kitchen garden or the pleasure grounds. To be able to analyse and describe the composition of soils, and to say what kinds are most suitable for certain crops is a very useful accomplishment, but this should follow a knowledge of the use of the spade and the other common, but useful, tools that are employed in outdoor work. There is a tendency nowadays to attach too much importance to the passing of examinations in horticulture and botany, which has the effect of causing young gardeners to think too much of the theoretical, and not enough of the practical, side of their profession. "An ounce of practice is worth a ton of theory" is an old saying that has a certain amount of truth in it, as it is much easier to do a thing on paper than to carry it out in practice and many gardeners have far more theoretical than practical knowledge of outdoor work. The herbaceous borders, the terraces, and the pleasure grounds are essential parts of every estate, and their upkeep and improvement call for more thought and attention than may appear at first sight. That gardeners generally are weak in outside work we have discovered during the last few years, as each season we require the services of trained men for planting and the laying out of grounds in different parts of the country, and it has been very difficult to find men for the work. The work certainly is only temporary, and involves a certain amount of travelling about, but the pay is good, and, for a gardener who is out of a situation, is a very good stop gap while waiting for an opening. The difficulty, however, is to get the men with the requisite knowledge. We can get plenty of men to take charge of a range of glass for a time, but to lay out lawns and pleasure grounds, make walks and terraces, and do a certain amount of planting is apparently a task beyond the powers of most of the gardeners that apply to us. J. O. B.

VEGETABLES.

EXHIBITION VEGETABLES.

How easy it is for the ordinary visitor to a horticultural show to admire the splendid specimens of vegetables there displayed, and to come away disappointed with the results obtained in his own garden. Exhibition vegetables are all too often the means of creating an unpleasantness between employer and the gardener who does not "grow to show." In vegetable culture for exhibition, there is and must be more artificial treatment than in any other process of horticulture. In the production of Grapes, Peaches, Melons, and many other subjects, a much less artificial system of culture is practised, the whole of the crop depending upon ordinary routine management, and not such an outlay in time, energy and extra material as is an absolute necessity in producing vegetables for exhibition. The same treatment is accorded to a Peach tree from which the show fruits are gathered as to the tree that produces the ordinary crop for the table.

In the same orthodox manner are Grapes grown, but perhaps in this latter crop there may be a more rigid reduction in the number of bunches to give greater size, and to cause the berries to swell more. In the case of vegetable culture for exhibition, special materials are needed, including a different compost for each vegetable, and farmyard manure in excess of ordinary crop requirements. In addition, there are the various artificial manures and liquid stimulants applied during growth to obtain excess in size of Onions, Celery, and Leeks for example. Then take into account the time expended in syringing the crops several times daily, the mass of appliances required, such as glass tubes, miniature boxes, for the production of lengthy Leeks, and the paraphernalia necessary to protect the few Peas each row produces from tomtits, jays, and other birds.

If a strict account of the expense of all additional aid could be tabulated, surprise would be expressed at the cost of producing these few specimens, as compared with the ordinary method of culture practised for kitchen-garden crops generally. Those who understand all the details of exhibiting know quite well how unreal is all this labour and expense as compared with the ordinary methods pursued to obtain simple, wholesome vegetables for consumption.

A casual or even a regular visitor to a show does not understand the requirements necessary to produce the examples of any kind of vegetable fine enough to satisfy the expert judge and, in ignorance, casts the blame for his mediocre display upon his gardener, the seedsman, the soil, the locality, or perhaps on the weather, forgetting that the production of show vegetables is in itself an art. Those who advocate the growing of vegetables less remarkable for size, but possessed of the best qualities from an economic and a gastronomic point, are right. Take a few examples as presented by the two sets of cultivators. Who does not prefer the small, hard, green, button-like Brussels Sprouts produced from an imported strain, to the huge, Cabbage-like knobs so broadly displayed by many exhibitors? Carrots and Parsnips cannot be grown for exhibition in some soils without much labour. Much time is required in boring holes a yard or so deep and filling them with a sandy compost to enable the exhibitor to secure a few extra long, straight roots. When any such crop is grown in land naturally unsuited to it, though the soil be trenched deeply and a fine tilth obtained at sowing time, the crop as a whole will be quite different from roots of exhibition quality. The plants will not possess one straight tap root, but the produce will suffice for ordinary table purposes, and the weight of crop be satisfactory. Take exhibition Peas as another example of wasted time. Much space is needed for each plant to produce even a limited number of pods

of huge size, and too often these are not filled, and hence are, from an economic point, a waste of labour. By the ordinary method the seed is sown 3 inches apart, the plants are allowed to grow uninterruptedly, and the whole of the haulm to develop fully, whereas in the exhibition row a severe limitation is put upon the growth of the plants. What are the results of the two methods? In the one case, we have a limited number of extra large pods, and in the other, a good crop of well-filled pods of medium size. Much more might be said to illustrate how unreal is the culture of vegetables for exhibition as compared with the methods for ordinary crops. No one will deny that these high-class examples are illustrations of what high culture can do, and how assiduous exhibitors can be in the achievement of an object.

If these exhibitors were to cultivate the whole of their crops in the same manner, and there is no reason why they should not do so if this system is so superior in production, then would the gardener who does not exhibit have less cause for complaint. But as it is, the exhibition samples create an erroneous impression. *Practical.*

SPINACH: THE CARTER.

SOME years ago, when this variety was first introduced, I formed a very favourable opinion of it, both for cultivating under glass in cold frames and for summer sowing generally. I have since grown it largely; but it is now as a variety for autumn sowing for winter use that I have a word to say in its favour. When looking over the gardens of Mrs. McIntosh, at Havering Park, recently, I was much impressed with two beds of Spinach, which were the best I have seen this year. Mr. Cox, the gardener, informed me that in both cases it was The Carter. Growing beside was a much inferior bed, which proved to be the old variety recommended for autumn sowing, and generally known as the Winter or Prickly-seeded Spinach. Mr. Cox assured me that he had been able to pick from The Carter practically every day throughout the past winter, and as Havering Park is situated in a part of Essex that is not very favourable for vegetable culture, I felt that it was quite worth recording. *E. Beckett.*

The Week's Work.

PLANTS UNDER GLASS.

By JOHN DONOHUE, Gardener to JOSEPH PIERCE GILL, Esq., Bardon Hill, Westwood, Yorkshire.

Ananas sativa variegata.—The variegated Pineapple forms a fine ornamental stove plant. If the suckers are detached from the parent plants and inserted in small pots they will take root. Use plenty of sand in the rooting medium and plunge the pots in bottom heat. Established plants do best when kept moderately dry at the roots, but the syringe should be employed on all favourable occasions. The plants develop their richest colouring when the roots are restricted in small pots, and plenty of sunshine is also essential in this respect.

Allamanda.—The plants are growing freely and will need thinning and training. If repotting is necessary this should be done without delay. The plant is a gross feeder, and enjoys plenty of moisture at the roots. An occasional dressing of some fertiliser will prove beneficial.

Genista.—After the flowering is over, the plants should be pruned and then transferred to a cool house. If repotting is necessary, allow the plants to start into growth before doing this work. Genistas should be placed out-of-doors during the summer, and it will be necessary to gradually harden them off, to accustom them to outdoor treatment.

Soft-wooded plants.—Fuchsias, tuberous-rooted Begonias, and other fast-growing plants should not be cramped at their roots. For the final potting employ the soil in a rather rough or loamy condition, and let it be of a rich nature. When the pots are well filled with roots, afford clear

soot-water and diluted liquid manure alternately. Do not allow insect pest to obtain a footing, and when any are detected, fumigate the house immediately, or syringe the plants with a solution of nicotine.

Streptocarpus.—Seedlings should be pricked out into small pots or pans filled with a mixture of loam, peat, leaf-mould and sand. Stand them close to the glass in the intermediate house or warm fernery, and shade them from bright sunshine. The older plants will be showing their flower-buds, and at this stage they will be benefited by some stimulant, such as liquid manure. During the flowering stage keep the atmosphere drier, and afford the plants a rather cooler treatment.

Ficus radicans variegata.—Cuttings inserted at this date will root freely. Small plants are very useful for draping the fronts of plant stages or for covering walls in the plant houses.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Pentstemon.—Plants that were rooted from cuttings last autumn and wintered in cold frames may now be transferred to their permanent quarters. They should be planted at a distance of 18 inches apart in rows, allowing the same distance between the individual plants. Guard against slugs, which are very destructive to Pentstemons. During dry weather the plants will be benefited by occasional dampings given early in the afternoon by means of a can with a fine rose; this moisture will be especially valuable when dry winds prevail. Seedling Pentstemons are growing freely. They should be thoroughly hardened off preparatory to planting them in the open, and should be planted out at a slightly less distance apart than those raised from cuttings. Do not discard the weaker-growing ones, as these often produce flowers of the choicer colours: Place a layer of finely-sifted, sharp, cinder ashes around each plant as a protection against slugs.

Tree Pæonies.—These plants are growing freely and developing their flower-buds. The Moutan Pæony exhibits a wonderful variety of colouring, and the flowers often measure a foot in diameter. Although the plant is perfectly hardy, late frosts often have an injurious effect upon the flower-buds, especially those that are reached by the sun's rays early in the day. The plant is a gross feeder, and requires a well-prepared soil containing a liberal amount of well-decayed manure. A good mulching should be applied after the flowering is over, as much to keep the roots moist as to provide nourishment. Pæony Moutan is often planted in isolated beds on lawns, but it appears at its best associated with other shrubs, when the flowers show to the best advantage. Remove any suckers arising from the stocks, and do not disturb the roots; the less frequently they are transplanted the better.

Japanese Maples.—These shrubs, like the Pæonies, are perfectly hardy, but the tender growths are sometimes injured by frost. They are unrivalled amongst shrubs grown for form and colour of foliage. The Japanese Maples are of moderately slow growth, but large specimens are frequent throughout the country. They also resent disturbance at the roots, and do best in a warm, open position in a well-drained, but not too heavy soil. A collection of these Maples massed in a bed forms a beautiful feature in any garden. There are numerous sorts, but they all belong to *A. palmatum* and its varieties, *septomlobum* and *dissectum*.

General work.—The present is a suitable time for applying weed killers to the paths and carriage roads. Weed killer is best applied in showery weather; the work needs to be carried out in the most expeditious manner, and with every possible care. The utensils employed should be set apart entirely for the purpose. Use great caution when applying the fluid near to grass verges or border plants, such as Box. Make a frequent use of the Dutch hoe on the borders, and employ the rake to make the beds and borders tidy. Plants in pots quickly become dry at this season, and will therefore need constant attention in watering. Frosts may appear unexpectedly, so that it will be wise to have material ready for protecting any plants needing it.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of Northampton, Castle Ashby, Northamptonshire.

The Gooseberry.—The Gooseberry saw-fly usually makes its appearance just as the buds are unfolding, depositing its eggs upon the under sides of the leaves. The eggs hatch quickly, and the caterpillars commence to feed at once, soon defoliating the bushes, unless measures are taken to check them. Whenever the pest is detected, the bushes should be dusted with dry soot in the early morning whilst the leaves are damp, or they may be sprayed with a solution of Calvert's carbolic soft soap, using 2 ounces of the soap in each gallon of rain-water. It is best to first dissolve the soap in a little boiling water. The caterpillar of the Magpie moth is another pest of the Gooseberry. It makes its appearance a little later than the saw-fly, but the same treatment will prove effectual. Where the caterpillars are very numerous, hand picking must be resorted to. The cuckoo feeds on these caterpillars, and should be encouraged. Both Red and White Currants are liable to the same pest, and the same treatments as are recommended for the Gooseberry should be adopted.

American Gooseberry mildew.—The cultivator must be on the watch for this disease, which is spreading rapidly in gardens. According to those who have intimate knowledge of the disease, it may be first detected in the form of white powdery patches on both the foliage and fruit; immediately such spots are seen measures must be taken to combat the disease. The bushes should be sprayed with liver of sulphur 2 ounces, and carbolic soft soap 4 ounces, well mixed together in three gallons of rain-water. Where the disease appears in isolated cases cut out the affected shoots and burn them, but in any case apply the specific recommended. Very badly affected bushes should be destroyed. In the autumn the fallen leaves should be raked up and burned, and a liberal dressing of freshly slaked lime and soot applied to the ground, lightly forking it in.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Zygopetalum.—The genus *Zygopetalum* now includes *Bollea*, *Pescatorea*, *Warszewiczella*, *Huntleya*, *Batemannia*, *Kerfersteinia*, and *Promenaea*. As regards their habit of growth, these are quite distinct from the true *Zygopetalum*, of which *Z. Mackaii* may be regarded as a typical example. The *Zygopetalum* proper possesses pseudo-bulbs, whereas, with the exception of *Promenaea*, the others enumerated are without them, possessing rhizomes only. The plants grow naturally in shady woods, in districts where rain falls nearly every day in the year, and where the average temperature is about 60°. At the present time, plants of these species are growing fast, and the foliage should be sprayed overhead with tepid rain-water three or four times a day, and root waterings should be given often enough to keep the compost moist. Stand the plants in the intermediate house in a position where they will be protected from even weak sunshine. A good plan is to elevate them well up underneath the foliage of such plants as the strong-growing *Cymbidiums*, especially where the *Cymbidiums* are arranged together in a group by themselves. It is advisable to keep the surroundings of *Zygopetalum* and its congeners moist at all times, and every precaution should be taken to protect the plants from dry currents of air, or insect pests will attack them. If any of the plants enumerated require repotting, it may be done at once; they succeed well in pots or shallow pans filled with Osmunda fibre and Sphagnum-moss; use rather more moss than fibre, add plenty of small crocks, and some coarse silver sand. The pots should be about three parts filled with material for drainage, and, when repotting, keep the base of each plant well above the rim of the pot. Do not press the compost too firmly about the roots. Fill the receptacles nearly to the rim with the soil, and cover the surface with a layer of living Sphagnum-moss, heaping it in the form of a cone about the base of the stems. Healthy, established plants that do not need repotting may be resurfaced with living Sphagnum-moss. *Stenia fimbriata* and *Chondrorhyncha Chesterton* require the same treatment. The dwarf-growing *Promenaea*s thrive best in small, well-drained shallow pans, which may be suspended

in a cool, shady part of the *Odontoglossum* or *Masdevallia* house. They do not require nearly so much water at the root as the others mentioned, nor do they appreciate overhead watering.

Lycaste.—Plants in cool houses will be passing out of flower. When growth recommences, let such plants as require repotting be attended to at once. *Lycastes* root freely in the same kind of compost as recommended for *Cattleyas* and *Laelias*. After repotting, be careful not to over-water the plants, as the young growths are liable to rot if too much moisture be given before the plants are well rooted. *Lycaste gigantea*, *L. fulvescens*, *L. lanipes*, *L. Dyeriana*, *L. macrobulbon*, *L. candida*, *L. Harrisoniae*, *L. tetragona*, and *L. plana* (*macrophylla*) do best in a house having an intermediate temperature. All *Lycastes*, when well rooted, delight in copious waterings. The foliage should be carefully watched for red spider, and, whether these insects be present or not, it is advisable to sponge the leaves periodically, as a preventive.

Dendrobiums.—Plants of the raceme-flowering *Dendrobiums*, including *D. thrysiflorum*, *D. densiflorum*, *D. Schröderi*, *D. Griffithianum*, *D. Farmeri*, *D. chrysotoxum*, *D. suavissimum*, *D. fimbriatum*, *D. f. oculatum*, *D. calceolus*, *D. clavatum*, and *D. moschatum*, that are now showing their flower-buds, should be afforded a little more water at the root than hitherto, and a slightly warmer temperature. Light sprayings overhead on warm, bright days will also assist the expansion of the flowers.

Warrea tricolor.—This pretty Colombian terrestrial Orchid is now in full growth, and should be afforded a shady position in the cool intermediate house. If grown in too warm a house, trips are sure to attack it, and, should they get low down in the growths, it is almost impossible to eradicate them. Trying to clear them out by brush or sponge is practically useless. Even when grown in this comparatively cool temperature, it is advisable to temporarily remove the plant to any house that is being fumigated or vaporised. Liberal supplies of water should be given till growth is completed.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Runner Beans.—The ground for this crop should be prepared in the same manner as for Peas. Sow the seed in double rows made 9 inches apart, allowing a distance of 8 feet before sowing the next pair of rows. When the plants have grown a few inches above the ground draw the soil around them and place strong, tall stakes along the rows, making them very firm to withstand the wind. A little protection may be afforded the seedlings by placing branches of Spruce or other evergreens along the rows. Slugs must be guarded against, the best deterrent being a dusting of hot lime applied in the early morning. To produce a very early crop of Runner Beans it is best to sow the seeds in 4-inch pots and to keep the plants in cold frames until danger from frost is past. The climbing Butter Bean and Veitch's climbing Kidney Bean may also be sown now, allowing a space of 6 feet between the rows. Make frequent sowings of dwarf French Beans in rows at 2 to 3 feet apart, according to the variety, allowing the greater distance in the case of a strong-growing kind such as *Prodigy*.

Tomato.—Plants intended for planting out-of-doors are now ready for shifting into 6-inch pots, where they may remain until planted out. For potting employ turfy loam and leaf-mould, and make the soil moderately firm. Place them in a cold frame, and keep the lights closed for a few days: afterwards they must be gradually hardened off, so as to be ready for planting out early in June.

Endive.—Make a small sowing of curled Endive in rows drawn 15 inches apart and 1 inch deep. As soon as the plants are large enough they should be transplanted, selecting rich ground, which should be frequently stirred with the Dutch hoe to assist the plants to grow quickly.

Onions.—Spring-sown Onions should have the soil about them stirred with the hoe as soon as they show plainly in the rows. Dust the bed with soot and lime in equal proportions, in order to ward off the Onion maggot. Do not thin the

plants too far apart unless large bulbs are desired, in which case a distance of 9 inches will not be too much. In order to obtain large Onions, a mulching of farmyard manure should be applied in dry weather, and afterwards a good soaking of water. Autumn-sown Onions will now be growing freely, and may be given a sprinkling of guano or some other fertiliser. Hoe the ground after the manure is applied, in order to keep down weeds.

Cucumbers.—Where these are grown in flat pits, the growth should be kept well thinned, and the leading shoots pegged to the soil in order that they may produce roots. Remove any old leaves that can be spared, and pinch the shoots at the second joint beyond the fruit, and take all other means to avoid overcrowding of the branches or foliage. Admit fresh air very sparingly, and be cautious in the use of the syringe, or mildew will make its appearance. Fresh beds for planting may be made of leaves and stable manure: young plants put out now will give better results than those that were planted six weeks ago. Cucumber plants that are growing freely in houses may be given frequent doses of liquid manure. Top-dress the roots with turfy loam and farmyard manure, remembering that it is better to afford fresh rooting material in small quantities and often than a lot at one time. Keep the foliage well thinned, and endeavour to promote a clean, healthy growth. The temperature at night should be 75°, and it may reach 85° to 90° in the daytime, when the sun is shining.

FRUITS UNDER GLASS.

By B. GODACRE, Gardener to Sir Ernest Cassel, G.C.B., Moulton Paddocks, Newmarket.

Perpetual-fruited Strawberries.—Plants which were potted up as runners last October will now be ready for placing in 5-inch pots, in which they will fruit. Use good fibrous loam, with a little well-decayed manure and mortar rubble, and pot firmly. The best position for them during the summer months is where it is shaded during the hottest part of the day. As the fruit is most valued when the outdoor Strawberries are finished, the flowers should be picked off until the middle or end of August. Attend carefully to watering, and when the pots are full of roots afford regular supplies of food, either as liquid manure or top-dressings of some fertiliser. Syringing may be practised in the evenings of hot days, to prevent attacks of red spider. When the fruit is set, support the trusses with forked twigs and move the plants to a shelf in a cool house, where the berries will ripen. By growing successional batches of plants, the fruiting season may be prolonged until well into November.

Plum trees in pots.—The fruits on the earliest trees have now "stoned," and are swelling. Some of the trees may be placed in a high temperature, say 70° at night time, and given liberal treatment until the fruit begins to ripen, with a view to early production of fruit. The house in which the main batch of trees is accommodated may be kept at a temperature of 60° to 65° at night, with a proportionate increase by day. Feed the roots with manure and soot water. Syringe the foliage in the afternoon whenever the weather is favourable and vaporise with a nicotine preparation on the first sign of aphid. The young growth should be pinched back to two or three leaves. Where the weight of the fruit causes the branches to droop, it will be necessary to tie them to a stake placed near the centre of the pot, exposing the fruit to sun and air.

Apple and Pear trees in pots.—These should not be subjected to such a high temperature as that advised for Plums. Fire-heat should be used sparingly, and advantage should be taken of sun-heat by closing the house early enough to raise the temperature a few degrees, syringing the trees vigorously at the same time.

Cucumbers.—The plants, when in full bearing, will require frequent attention in pinching and regulating the growths. Keep the shoots rather thinly disposed over the trellis, removing any worn-out or useless growths, to make room for young shoots. Do not over-crop, but remove some of the young fruits where they have set thickly; also cut out any which are crooked or deformed. Keep the plants in good health by affording liberal supplies of water and food, and endeavour to keep the foliage in a clean, healthy condition by syringing with tepid water. Sow seeds at intervals for successional crops.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations. The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MAY 9—

Surveyors' Inst. meet. United Hort. Ben. & Prov. Soc. Com. meet.

FRIDAY, MAY 13—Devon County Sh. at Exmouth (8 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—62°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 4 (6 P.M.): Max. 52°; Min. 42°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 5 (10 A.M.): Bar. 29.6; Temp. 51°; Weather—Raining.

PROVINCES.—Thursday, May 4; Max. 48° Cornwall; Min. 40° Scotland S.

SALES FOR THE ENSUING WEEK.

TUESDAY AND WEDNESDAY.—

The "Exhibs" Collection of Orchids, by order of the Exors. of the late J. Forster Alcock, Esq.; at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

WEDNESDAY—

Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; Palms, Bays, Greenhouse Plants, Designs in Larch, &c., at 3; at 67 & 68 Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY, THURSDAY AND FRIDAY—

Greenhouse, Bedding, Climbing and Hardy Plants; at St. John's Nurseries, Worcester, re R. Smith & Co., Ltd.; in Voluntary Liquidation, by Protheroe & Morris, at 11.30.

FRIDAY—

Imported Cattleya Mendelii and Dendrobium Bronckhardtii, also imported Brazilian and other Orchids, Established Orchids, &c.; at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The contribution from Dr. Henry, Reader in Forestry in the University of Cambridge, which we printed recently, is deserving of the close attention of all interested in the development of forestry in this country.

Dr. Henry's experiments in breeding timber trees, though as yet in an initial stage, have thrown light already on many problems which have vexed the minds of botanists for generations.

As he points out, certain trees, for example, Elms and Poplars, are characterised by the possession of numerous varieties, each variety differing from the specific forms, not in one character only, but in an assemblage of characters. For example, the Huntingdon Elm (*Ulmus vegeta*), though it has many of the characters of *Ulmus glabra*, has also some of those of *U. montana*. It also possesses to a remarkable degree the power of rapid growth. Other trees, for example the Beech, do not give rise to varieties of a kind similar to those exhibited by the Elm. Thus the Beech, though it has produced numerous sports, e.g., purple and copper Beech, the fern-leaved Beech and so on, has, in this country, no varieties which are distinguished

from the specific form by what we have called already an assemblage of characters.

Dr. Henry points out in this connection that the trees of the former kind, Elm, Poplar, &c., occur here as more than one species, whereas the trees of the latter kind occur as only one species.

He therefore suggests that the many varieties of Elm and Poplar which occur in various parts of the country are descendants of species-crosses.

The truth of this suggestion he has confirmed by breeding experiments, the details of which are given on p. 257. With the important and interesting Mendelian results which such experiments have yielded we are not now concerned. What is of the greatest importance from the practical point of view is Dr. Henry's conclusion that the extraordinary vigour and superior rate of growth of many varieties of Elm, Willow, and other trees are but manifestations of the phenomenon, thoroughly well known to horticulturists, of the increased vitality exhibited by first crosses.

As Dr. Henry points out, if forestry is to be engaged in successfully on a large scale in this country, it is essential that quick-growing trees, the timber of which is of considerable commercial value, should be planted.

The result of his investigations leads him to the fertile suggestion that such quick-growing trees may be obtained by doing artificially and scientifically for plants like the Ash what nature has been doing obscurely and casually, namely, making first crosses. By crossing *Ulmus glabra* and *U. montana*, nature has produced quick-growing varieties like the Huntingdon Elm. Why should not man do the like for such trees as the Ash, which occur naturally in this country as a single species?

We hope that Dr. Henry's invitation to those interested in forestry to co-operate with him in breeding experiments along the lines which he has indicated will meet with a general and effective response.

OUR SUPPLEMENTARY ILLUSTRATION.—Mr TALBOT CLIFTON's collection of Orchids at Lytham Hall includes many rare and beautiful species, one of the finest in bloom at the present time being the beautiful *Vanda suavis pallida* Cliftonii, shown in the Supplementary Illustration. It is in one of the houses as a centre piece to a group of other notable plants, including choice forms of *Vanda tricolor*, species of *Aërides*, *Saccolabium*, and *Angræcum*. *Vanda suavis pallida* Cliftonii is by far the best of the extremely rare albino varieties of *Vanda tricolor* suavis. The flowers are pure white, with markings of soft greenish-yellow. *Phalænopsis* also thrive admirably at Lytham under the care of Mr. FLOAT, the gardener. The house in which these plants are grown is a low, lean-to structure well sheltered by trees, and in all respects well adapted to their needs. The *Phalænopsis* are handsome on account of their elegant foliage. A good example of the growth which these plants make in these gardens is seen in specimens of *P. violacea* collected wild by Mr. TALBOT CLIFTON. The foliage of the collected plants is now three times as large as that of the wild plants. The house in which the *Phalænopsis* are staged also contains a fine collection of *Bulbophyllums* and *Cirrhopetalums*, whilst in other houses are displays of *Cattleyas*, *Lælio-Cattleyas*, *Angræcums*, *Lycastes*, and *Odontoglossums*. Most of the Orchid houses contain some charming little species not common in gardens. Mr. TALBOT CLIFTON has a large number

of paintings, forming quite a gallery, of his best plants, skilfully executed by Miss M. WALTERS ANSON, who has reproduced the flowers in colours in the most artistic and faithful manner.

SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture Hall of the Institution on Monday, May 9, when the adjourned discussion on Mr. R. F. GRANTHAM's and Mr. W. MENZIES' papers on "Road Making and Dust Prevention" will be continued. Mr. HOWARD MARTIN (past president) will re-open the discussion.

THE LATE BARON SCHRODER.—The following note has been entered in the minute book of the Council of the Royal Horticultural Society, May 3, 1910.—"The Council of the R.H.S. desire to be entered on the minutes of their proceedings their deep sense of the great loss sustained by the horticulturists of this kingdom by the death of Baron SCHRODER, a loss falling with additional severity on the Royal Horticultural Society, of which the Baron had for more than five-and-twenty years past been a most generous supporter and a constant friend and councillor. The Council also wish to put on record their opinion that, without the Baron's insistent energy, the Society might even yet have been without its present excellent hall and offices, which it owes in no small degree to his initiative and liberality. It is further resolved that the Council, acting on behalf of the Society, establishes in memory of the Baron a perpetual life pensionership, under the rules and regulations of the Gardeners' Royal Benevolent Institution, such pensioner to be called 'the Baron Schröder pensioner.'"

JAPAN-BRITISH EXHIBITION.—A congress relating to women's work in agriculture will be held at the Shepherd's Bush Exhibition on July 5 and 6. The details are being arranged by the Hon. FRANCES WOLSELEY, Principal of the Glynde School for Lady Gardeners in Sussex, and the Viscountess FALMOUTH will act as president. The following subjects are down for discussion: lady gardeners, lady gardeners for the Colonies, landscape gardening and expert advice, jobbing gardening, American landscape gardening, French gardening, market gardening, co-operation amongst ladies in gardening, Nature study, lady farmers, bee-keeping, poultry-keeping, dairying, pony breeding, fruit farming, and fruit preserving. It is hoped that Mr. H. INIGO TRIGGS will speak on "The Importance of Design in the Garden."

THE SHIRLEY POPPY IN SOUTH AFRICA.—When the Rev. W. WILKS first obtained, by selection, this beautiful form of the wild Poppy, he probably never imagined the fame to which it would attain, for Shirley Poppies are favourites in many parts of the world. Mr. JAMES HALL, the veteran florist of Johannesburg, frequently sends flowers of Shirley Poppies in his letters to his friends in England. According to this gentleman, the plants seed freely in his garden, and the flowers of those self-sown are frequently finer than those sown under cultivation. They are in great demand in the colony as cut flowers, especially for table decorations, as much as 20s. being often paid at a single purchase of these blooms.

THE DEVELOPMENT BILL.—The names of the members of the Commission to which the carrying out of the purposes of the Development Bill is entrusted were announced in Parliament last week. It is a matter for satisfaction that Mr. A. D. HALL, the Director of Rothamsted, is one of the members of the Commission, for all who know his admirable work at that station will feel confident that the claims of agricultural and horticultural research will be urged with authority and success by Mr. HALL on the other members of the Commission.

"THE BOTANICAL MAGAZINE."—The issue for May contains illustrations and descriptions of the following plants:—

CYMBIDIUM INSIGNE, tab. 8312.—The species was first described in the *Gardeners' Chronicle*, June 18, 1904, p. 387, by Mr. R. A. ROLFE, from dried specimens and a coloured drawing sent to Kew by Mr. G. SCHNEIDER, who received them from Mr. G. BRONCKART, the discoverer of the plant in Annam. At the meeting of the Royal Horticultural Society on February 14, 1905, Messrs. SANDER & SONS exhibited a flowering plant before the Orchid Committee under the name of Cymbidium Sanderi, the plant receiving a First-class Certificate. Messrs. SANDER's specimen was sketched by Mr. WORTHINGTON SMITH, and figured in the *Gardeners' Chronicle*, February 29, 1905, under the specific name of Sanderi.

PRIMULA FORRESTII, tab. 8313.—This handsome, yellow-flowered Primula is named in compliment to Mr. GEO. FORREST, who discovered it whilst plant collecting for Messrs. BEES, LTD., in Yunnan, China. The plant is figured in *Gardeners' Chronicle*, May 1, 1907, p. 274, fig. 117, the accompanying text being furnished by Prof. BALFOUR.

NOTHOFAGUS ANTARCTICA, VAR. ULIGINOSA, tab. 8314.—This is a tree widely distributed in temperate South America; it is a near relative of the Beeches. Sir JOSEPH HOOKER introduced plants to this country 70 years ago, but the tree is so rare in this country that only one well-known specimen exists; this grows at Hafodunos, Denbighshire. In 1902 seeds were brought from Chili by Mr. H. J. ELWES, and the young trees raised from these are growing with remarkable vigour, so that it appears likely to become permanently established in this country. The material from which the figure in the *Botanical Magazine* was drawn was obtained from a tree growing near the pagoda in Kew Gardens. Mr. ELWES states that in the plant's natural habitat the leaves turn a brilliant red in the month of February. Specimens have been found to succeed best at Kew, planted in a sandy loam mixed with a little peat.

CORNUS FLORIDA, VAR. RUBRA, tab. 8315.—This rose-coloured variety is sometimes met with in a wild state in the middle and southern United States of America. The plant will only succeed in few situations in these islands, and at Kew Gardens it always requires protection. But it flourishes in the garden of Mr. B. E. C. CHAMBERS, Grayswood Hill, Haslemere, who supplied the material for the figure. Its nearest congeners are C. Nuttallii and C. Kousa. In a wild state Cornus florida forms a tree sometimes 40 feet high, but in cultivation it rarely attains to more than 15 feet in height. The bark yields the bitter principle known as Cornine, a drug sometimes used in medicine.

ACANTHOPANAX HENRYI, tab. 8316.—The species was first discovered by Dr. HENRY in Central China, and was introduced to cultivation by Messrs. VEITCH & SONS through their collector WILSON. Plants growing in the Coombe Wood Nursery of this firm are 5 feet high and as much through. The branches are thorny and the leaves compound, like an Aralia. The inflorescence greatly resembles that of the Ivy, the flowers being succeeded by globose heads of black fruits. A drug is obtained from the roots. The plant grows well in ordinary soil and is hardy.

THE PHYSIOLOGY OF PRUNING.—In a brief but excellent article in the *Journal* of the Royal Horticultural Society (Vol. 35. Part III., March, 1910), Mr. E. A. BUNYARD discusses the physiology of pruning. After a short account of the mode of nutrition of the plant by means of its roots and leaves, the writer considers the origin

of the differences between fruit-buds and wood-buds, and the manner in which pruning may modify their development. To young gardeners in particular we recommend Mr. BUNYARD's thoughtful and lucid exposition of the fundamental principles which underlie the practice of pruning.

THE POET BJÖRNSSON AND SPADE-WORK.—The Norwegian poet and patriot, BJÖRNSSON, whose death occurred last week, was remarkable no less for his physical than mental energy. In illustration of his love of physical exercise, Mr. EDMUND GOSSE, writing in the *Westminster Gazette*, on April 27, relates the following characteristic remarks of the poet:—"Music is my amusement, and digging is my recreation. You smile when I say digging is my recreation; but it is so. Your GLADSTONE felled Oaks, I dig with a spade, and I am more pleased at having my name on a spade than on a book."

THE "LOUIS VAN HOUTTE" CENTENARY FETES.—We understand that the arrangements in connection with the celebration of the hundredth anniversary of the birth of LOUIS VAN HOUTTE, to which we referred last week, are now approaching completion. Those taking part in the commemoration will assemble round the statue of VAN HOUTTE, at Gendbrugge, and will witness a floral fête of decorated cars and groups representing episodes in the life of this distinguished man. The firm of VAN HOUTTE has organised, as a tribute to his memory, an exhibition which will include a display of all the plants introduced into cultivation by the founder of the firm. Finally, it is intended to publish as a souvenir of the occasion a brochure, giving a biography of the subject of these celebrations.

EXPERIMENTAL GREENHOUSES IN AMERICA.—The determination to develop American horticulture on scientific lines has led florists in several States to erect ranges of greenhouses to be used exclusively for the purposes of research. Thus, according to the *Florists' Exchange*, the State Florists' Association of Illinois—the pioneers in this enterprise—has been instrumental in securing the erection of what may not inappropriately be called research conservatories. Buffalo has made a start in a similar direction, and now New York florists are engaged in urging the support of a bill recently introduced to build and equip a range of glasshouses and service building for teaching floriculture at Cornell University.

THE INFLUENCE OF LIGHT ON THE GERMINATION OF SEEDS.—Though, for the most part seeds germinate as readily in darkness as in light, there are numerous exceptions to this rule. Thus, according to E. HEINRICHER (Wiesner Festschr. Wien., 1908), light exerts a markedly accelerating influence on the germination of the "pitcher plants" *Saracenia flava* and *Darlingtonia californica*. Again, the seeds of the Javanese epiphyte, *Rhododendron javanicum*, are incapable of germinating in the dark, but since this is true also of other non-epiphytic species, for example, *Rhododendron hirsutum* and *R. ferrugineum*, the peculiarity is not to be regarded as an adaptation to an epiphytic mode of life. Veronicas, e.g., *V. perigrina*, are also other plants whose seeds germinate more rapidly in light than in darkness. In the case of minute spores, e.g., of the Ferns, the reason for their failure to germinate in darkness is not far to seek. Unless they are exposed to light they cannot manufacture the food materials necessary for growth, and for such spores to begin to germinate before light falls upon them would be fatal. But in the case of the seeds of

the above-mentioned plants there are sufficient stores of reserve materials laid up in the cotyledons or endosperm, and, therefore, the explanation of their curious behaviour must be sought in some other—at present unknown—direction. It might naturally be supposed that the accelerating influence of light on germination is primarily a temperature effect—that the light exercises its influence by raising the temperature of the seed bed. This, however, appears not to be the case. That the subject is one of some importance in practice—for example, to seedsmen—is evident from the experiments of LASCHKE (Landw. Versuchstation lxx., p. 295, 1907), who finds that among Grasses, *Poa pratensis* is very sensitive to light. Whereas only 4 to 6 per cent. of its seeds germinate in the dark and 67 to 70 per cent. in weak daylight, 85 to 88 per cent. germinate in direct sunlight. Similar results were obtained with *Anthoxanthum* and *Cynosurus cristatus*. Those whose business it is to make germination tests of many kinds of seeds should bear these facts in mind, and also remember that what is the best germination method for one kind of seed is not suitable for others.

GARDEN PLANNING.—Mr. T. FISHER UNWIN will shortly publish Mr. W. S. ROGERS's book *Garden Planning*. A feature of the work will be a series of plans drawn to scale for various sites and aspects. In all, there will be 150 practical drawings.

PUBLICATIONS RECEIVED.—*Supplement to the Journal of the Board of Agriculture*. Reports on the Work of the International Agricultural Institute, by Count FAINA and M. Louis DOP. (London: R. Clay & Sons.) Price 4d.—*New Zealand Department of Agriculture*. Annual Report, 1909. Division of Biology and Horticulture, by T. W. KIRK; Veterinary Division. Bovine Contagious Mammitis, by J. A. GILRUTH; Two Diseases affecting Pregnant Ewes, by J. A. GILRUTH; Leaflets for Farmers, No. 80: Root-Crops; Dairy Division. Bulletins: New Zealand Dairy-Products on the British Market, by D. CUDDIE; Review of the Work of the 1907-8 Season, by W. M. SINGLETON; Pasteurisation of Skim-milk and Whey, by D. CUDDIE; Review of the Work of the 1908-9 Season, by D. CUDDIE. (Wellington: John Mackay, Government Printer.)—*Principes G n raux de la Culture des Plantes en Pots*, by M. A. PETIT. (Paris: 79, Boulevard St. Germain, Librairie Hachette et Cie.)—*Field Experiments in Staffordshire and Shropshire*. Joint Report for Season 1909. (Stafford: J. & C. MORT, LTD., 39, Greengate Street.) Price 1s.—*One & All Garden Books*, edited by Edward Owen Greening. Cabbages, by H. J. WRIGHT. (London: Agricultural & Horticultural Association, Ltd., 92, Long Acre, W.C.) Price 1d.—*United States Department of Agriculture* (Bureau of Entomology Bulletins.) List of Publications of the Bureau of Entomology, compiled by Mabel COLCORD, Librarian; Control of the Brown-Rot and Plum Curculio on Peaches, by W. M. SCOTT and A. L. QUAINANCE; The Clover Root-Borer, by F. M. WEBSTER; The Larger Corn Stalk-Borer, by GEORGE G. AINSLIE; The Western Grass-Stem Sawfly, by F. M. WEBSTER and GEORGE I. REEVES. Bureau of Plant Industry: American Export Corn (Maize) in Europe, by JOHN D. SHANAHAN and CLYDE E. LEIGHTY and EMIL G. BOERNER (Washington: Government Printing Office.)—*University of Illinois Agricultural Experiment Station, Urbana*. The Live Stock Situation in Illinois, by HERBERT W. MUMFORD; Economy of the Round Dairy Barn, by WILBER J. FRASER; Growing Tomatoes for Early Market, by JOHN W. LLOYD and I. S. BROOKS. (Urbana, Illinois.)—*National Rose Society's Handbook* on the Fungus and Insect Pests of the Rose, entitled *The Enemies of the Rose*, by GEORGE MASSEE and FRED V. THEOBOLD; edited by the Hon. Secretary, Mr. EDWARD MAWLEY, Rosebank, Berkhamstead, Herts. National Rose Society's *Rose Annual for 1910*, edited by the Hon. Secretary. (Croydon: Jesse W. Ward, Advertiser Office, High Street.)—*The Journal of Botany, British and Foreign*, edited by JAMES BRITTON. (London: West, Newman & Co., 54, Hatton Garden, E.C.) Price 1s. 8d.

BRUSSELS INTERNATIONAL SHOW.

APRIL 30—MAY 3.

THE first of a series of international horticultural shows which will be held in the grounds of the Brussels Universal Exhibition was opened to the public on Saturday, the 30th ult. The grounds utilised for the purposes of the Universal Exhibition are some 200 acres in extent, and are situated at about 4 miles north-west of the centre of the city, beyond the well-known Avenue Louise, with its fine avenues of Chestnut trees. The site is, therefore, favourably placed in one of the most charming suburbs; moreover, it is pleasantly undulating, and capable of being made very pretty. But, as happens in many similar cases, the Brussels exhibition has been opened to the public whilst it is still in a state of unpreparedness, and, for this reason, visitors to the first horticultural show had no opportunity of seeing the exhibition grounds at their best. The horticultural display would, doubtless, have been postponed, but for the fact that the flowering season for *Rhododendron indicum* and most of the New Holland plants was nearing its end, and these species are indispensable plants at all spring flower shows in Belgium.

In order to properly appreciate the Belgian exhibitions, English visitors should remember that the great lack of hardy flowers, such as are shown in great numbers at our Temple shows is mainly due to the fact that there are very few amateur gardeners in Belgium, and that, therefore, the displays at exhibitions are largely contributed by members of the trade. Not only is this the case, but Belgian nurserymen cultivate most of their plants for exportation, comparatively few being sold in Belgium itself. The chief plants exported from the Ghent district are Azaleas, Aroids, Palms, and other fine foliage plants for stove and greenhouse culture, including immense numbers of *Araucarias* and *Aspidistras*, and such out-door plants as *Baya*, *Yuccas*, and *Dracenas*. It is these species which form the main feature at the Belgian exhibitions, and even the Ghent quinquennials owe much of their effectiveness to the unrivalled groups of specimen Azaleas and *Rhododendrons*, whose brilliant colouring is relieved by magnificent foliage plants.

In any consideration of the Brussels show, allowance must be made for circumstances quite beyond the control of the committee of management, chief amongst these being the cost of transporting great specimen-plants from the Ghent district, which is the centre of the horticultural trade in Belgium. It is easy enough to send smaller plants, such as are exported, but quite another matter to deal with the large plants which are kept year after year exclusively for show purposes. Then, as at Berlin, there is in Brussels a lack of the perfect organisation which exists at Ghent. For the last-named town has been accumulating experience gradually and laboriously from decade to decade. It is scarcely surprising, therefore, that the Brussels show, whilst resembling a Ghent quinquennial in its general character, was, nevertheless, of much smaller proportions.

The display was arranged in one of the temporary buildings, the area of which was 6,000 square metres. It possessed a raised platform at one end, which was utilised for the Orchids; but most of the other exhibits were arranged in groups on the floor of the hall. The general effect was marred by the brilliantly-coloured flags—red, yellow, and black—which were arranged on every pillar of the building, and detracted from the colours of the flowers.

The authorities of the Universal Exhibition are primarily responsible for the temporary shows, and a certain amount of financial assistance is afforded by the State.

The jury assembled on the morning of Friday, the 29th ult., and, after the adjudication was completed, the members were entertained at luncheon. On the evening of the same day the jury were invited to be present at a banquet provided by the Presidents of the Committee of Organisation, MM. Victor du Pré and Firmin Lambeau.

On the following morning, the guests invited to take part in the horticultural congress assembled in the Congress Hall, when speeches were

made by M. le Baron E. de Kerchove d'Exaerde, President of the Committee, and others. Afterwards, the members were grouped into the various sections, and the congress was adjourned until the following Monday. The subjects discussed during the subsequent proceedings were enumerated in last week's issue, and certain of them are referred to more fully this week on p. 289.

On Sunday, the guests were invited to Laeken, for the purpose of visiting the King's private gardens and the "Colonial garden." The latter is a State garden, containing a large and interesting collection of economic plants from the Belgian colonies.

Although the congress and the exhibition were held concurrently, they were quite separate events, under different auspices and management, whilst the guests at one were not necessarily guests at both. The president of the Congress Committee was M. le Baron de Kerchove d'Exaerde; and the Vice-Presidents, MM. Arthur de Smet, President of the Chambre Syndicale des Horticulteurs Belge, and Firmin Lambeau, President of the Société Royal Linnéenne Brussels. The general secretary was M. le Comte Adrien de Ribaucourt, Secretary of the Fédération des Sociétés horticoles du Brabant, and the assistant secretary M. Edgar Rodigas, who carried out all the arrangements.

The Presidents of the Exhibition Committee were MM. V. du Pré, President of the Société Royale de Flore, and Firmin Lambeau; and the secretary, M. Louis Gentil, Secretary of the Société Royale de Flore, Brussels, assisted by M. N. Seghers, Secretary of the Société Royal Linnéenne.

The exhibition was visited by the King and Queen on Monday, May 2. Their Majesties stayed for rather more than two hours, and inspected the exhibits in detail.

On Wednesday there was a farewell banquet, after which the proceedings of the congress and exhibition terminated.

THE JURY.

The jury for the exhibition consisted of 92 members. The President was M. Truffaut, Vice-President of the S.N. d'Hort. de France, and the Vice-Presidents, Mr. W. Watson (Kew), Arthur de Smet, President of the Conseil Supérieur d'Horticulture Belge. The English members of the jury were Mr. W. Watson (president of Section 1), Mr. Stuart Low, Bush Hill Park, Enfield (president of Section 5), and Mr. R. Hooper Pearson (president of Section 4).

VISITORS FROM ENGLAND.

In addition to the members of the R.H.S. deputation to the congress and the three jurors who officiated at the exhibition, there were present about 50 English visitors, including a company of 22 members of the horticultural trade, who formed a party organised by Mr. J. S. Brunton.

ORCHIDS.

Belgium, France and England were the countries represented in the Orchid section. The plants were staged on a raised platform about 300 feet in length, extending along the whole of one side of the exhibition building. Thanks to suitable draping and a favourable light, the plants were seen to advantage, and, by means of hot-water pipes, the air on that side of the building was kept fairly warm. The largest group of plants were shown by M. FIRMIN LAMBEAU, to whose enthusiasm and disinterested efforts the success of the exhibition was largely due. His group was composed of 200 plants, and was awarded a large Gold Medal. Hybrid *Odontoglossums* of the ardentissimum race were the principal feature, many of the plants, which were large and well-grown, being unnamed seedlings. *O. Lambeauianum* was represented by several good examples. A superb variety of *O. crispum*, without any distinctive name, was an attraction, owing to the large size and good form of its flowers, which were white, with a large, dark-coloured blotch on each of the segments. Several

good varieties of *O. eximium*; a beautiful plant of *O. ramosissimum*, bearing a large, branched spike of heavily-spotted flowers; a fine variety of *O. Bradshawiae*; good examples of *Miltonia vexillaria* "G. D. Owen" and *M. Bleuana grandiflora*, *Zygopetalum Perrenoudii*, *Dendrobium Bronckhartii*, *Cattleya Schröderae* Queen Alexandra, *Brasso-Cattleya Senateur de Bast*, mauve-pink, with a large labellum-like *Cattleya-labiate*, var. aurea; two well-flowered plants of the charming *Cattleya intermedia alba*, one carrying 21 flowers; a grand lot of *Cattleya Lawrenceana*, and some good varieties of *C. Mendelii*.

MM. DUCHESNE ET LANTHOINE, Brussels, obtained a Gold Medal for a large group comprising many plants of *Cattleya Schröderae*, *Vanda cœrulea*, *Sophranitis grandiflora*, *Cypripedium bellatulum*, *Odontoglossum Fascinator nobilior*, *O. Dreadnought*, *Odontioda Devosiana*, deep maroon; *Dendrobium Dearei*, *D. velutinum*, *Miltonia St. Andrea*, with eight spikes, and *Phaius Norman*.

M. CH. DIETRICH, Brussels, was awarded a Gold Medal for a group which included good examples of *Brasso-Cattleya Veitchii*, *Vanda Imschootiana*, *Odontioda Lambeauiana*, *O. Bradshawiae* (a very good variety with bright-scarlet flowers 2 inches across), *Miltonias Bleuana nobilior*, aurea and Mme. Moore, *Phalaenopsis Rimestadtiana*, and a fine but unnamed variety of *Odontoglossum crispum*.

M. CH. MARON, Brunoy, the only French exhibitor, obtained a Gold Medal for a group which included some well-grown examples of *Oncidiums*, *Dendrobiums*, *Cattleyas*, &c., including *Lælio-Cattleya Faust*, the flowers a singular mixture of apricot-yellow and pink, and *Epi-Lælia distincta*, *Lælio-Cattleya Firminii*, and its variety *superba*, L.-C. Myra var. Fanny, a large, well-flowered plant of *Renanthera Imschootiana* and *Cattleya Mendelii* Louise de Mantes.

M. CH. VUYLSTEKE, Loochristi, Ghent, showed a collection of hybrid *Odontoglossums* of the type and quality which created so much excitement at the last Ghent Quinquennial. The plants showed that excellence of culture, for which this clever breeder and grower is famed. The most striking of the hybrids were *Prince Leopold*, deep chocolate, with a narrow, whitish margin; *Duc d'Ursel*, *Euterpe*, with very large flowers, spotted like a leopard; and *Mandarianum*. A remarkably good variety of *O. crispum* was called *La Perfection*, and among other plants was a grand *Odontioda* named *Sensation*, and another called *Diana*, obtained by crossing *O. Vuykstekeae* with *O. crispum*, and having flowers 2½ inches across. The flowers were like those of *O. crispum*, white, with a clear blotch of cinnabar-red on each segment, and a conspicuous yellow crest. M. CH. VUYLSTEKE was awarded three Gold Medals.

M. JULES HYE showed a glass case containing a dozen *Odontoglossums* of first-rate merit.

MM. THEODORE PAUWELS ET CIE were awarded two medals for a large group, in which there were many beautiful Orchids, including *Brasso-Cattleyas*, *Epidendrum atropurpureum* and *Lælia harpophylla*, with sepals and petals of golden-yellow colour and the lip white.

Messrs. CHARLESWORTH & Co., Haywards Heath, Sussex, maintained the reputation of England and their own with a choice collection of species and hybrids, for which a Gold Medal was awarded. *Miltonia vexillaria Lauræ*, with very dark-coloured flowers, almost purple; *Lælio-Cattleya Mercia*, sulphur yellow; *Cymbidium Lowianum concolor*, *Odontoglossum Ceres*, a hybrid between *O. Rolfeae* and *O. Rossii*; several forms of *Odontioda Charlesworthii*, one a good crimson; *Trichopilia Backhousiana*, *Zygocloax Charlesworthii*, an unnamed specimen of *Gongora*, with white-lipped flowers, and a pair of eye-like spots on the labellum; *Dendrobium nobile virginale*, &c.

Messrs. Low & Co., Enfield, showed a group in which were good examples of *Cymbidium Holfordianum*, *Cattleya Mendelii*, *Dendrobium infundibulum*, *D. crassinode*, *D. Wardianum*, *Odontioda Goodsonii*, *Odontoglossum Cervantesii*, *O. Pescatorei*, and *Cirrhopetalum Collettii*.

A few imported Orchids were shown by M.

P. M. BUIST, 106, Rue Gallait, Brussels, just as the plants were received and before being potted. (Silver Medal.)

AZALEAS AND RHODODENDRONS.

The exhibits of *Azalea indica* were quite up to expectations so far as cultivation and variety were concerned. The plants were arranged in large groups. One contained some specimens standing from 3 to 6 feet high, with heads 4 feet or more in diameter. They were mostly grown in wooden tubs, and had a clear stem for about 2 feet above the level of the soil. From this point the branches were trained out radially from the top of the main stem, so that the periphery formed a circle practically as perfect as if it had been designed by a compass. When in blossom, there are few plants to equal the Indian Azaleas, either in the freedom with which the blooms are produced or the brilliant colour effects they provide. By years of cultivation and selection, charming forms have been evolved, and, judging by the smaller seedling plants exhibited at Brussels, there seems to be no end to the variations likely to occur. There are many red, crimson, magenta, rose-purple, salmon, scarlet, and white varieties known, but the soft pink shades are not so common. One variety in particular excited much admiration. It was named "Lady Roosevelt," and was shown by M. AUGUST HAERENS, nurseryman, Somergem, Belgium. The individual blossoms are 3 to 4 inches across, and semi-double, like many other varieties. But the colour at once arrested attention, being a beautiful pink shade, resembling that of *Nermin Oleander* or the American Carnation called Mrs. Burnett. Lady Roosevelt may prove a good commercial plant, notwithstanding a lack of substance in the flowers, as it seems to possess great vigour and freedom of flowering. Another variety, having a resemblance to Lady Roosevelt, was called Rudolf Seydel, but it is not equal in merit. The colour is of a deeper fleshy pink, and some of the petals are splashed or streaked with crimson. The exhibitor of these plants received a large Silver Medal.

Other Azaleas worthy of mention included one known as *Eclair*, a deep brilliant crimson flower, as clear in colour as a Liberty Rose, and remarkable for having two distinct blotches of black spots on the upper petal. Other brilliant crimson-flowered Azaleas were Marc Rooman d'Ertbuer and Apollo, the latter much brighter and cleaner in colour, both forms being semi-double. Flambeaux is a distinct single-flowered form, with magenta-red blossoms; Ferdinand Kegeljan, deep rose, spotted with purple; Marquis of Lorne, bright fiery red; Spit Fire, a brilliant crimson-scarlet double; and Oberst von Kutsinsky, a fine double scarlet flower.

One of the chief features amongst the rich, crimson-coloured varieties was an exhibit of 12 fine plants from M. CH. VUXLSIEKE, Loochristy, near Ghent. A Gilt Medal was awarded for this group.

White varieties served well to break up the more vivid colours, and amongst the finest were *indica alba*, pure white; *alba magna*, white, faintly tinged with watery green; Bernard Andrea alba, a good semi-double flower; Magnifique, faintly flushed with green at the base; and Eros, a fine double bloom. There were several other varieties, more or less well known. One of the best amongst the spotted forms was *Vervaneana*, a fine old double variety, having blush-rose petals fading to white on the margins, and the upper petal being spotted with bright crimson.

The display of hardy *Rhododendrons* was not extensive, and many kinds appeared to have suffered with frost. The plants were from 3 to 4 feet high, and most of them were in tubs. These were plunged almost up to the rims in the yellow, sandy soil, which caused the plants to be somewhat dwarfed in appearance. M. JEAN BRACKE BEYST, of Loochristy, Ghent, appeared to be the only exhibitor, and was awarded the 1st prize for a very deserving group. Chief amongst the varieties shown were Mrs. Thiselton-Dyer, a rich, rose-purple; Kate Waterer, deep purple, with the upper petal having green blotches on a white ground; and Viola, a good white-flowered form, with strong, erect trusses, conspicuous for the dark-coloured anthers. Pink Pearl was shown, but not nearly so well as this variety is seen frequently in London. White Pearl, however, made up for

this, having large, almost pure white blossoms when fully expanded, but in the bud state they are of a bright, rosy pink, which gradually fades with age.

HIPPEASTRUMS.

The best group of *Hippeastrums* was brought from England by Messrs. KER & SONS, Aigburth Nurseries, Liverpool. This firm showed about 160 plants in flower, including a large number of varieties exhibiting brilliant colours, and others so lightly coloured that they approached to white. Though the collection had suffered somewhat during the transit of the plants from England, it gained five 1st prizes for Messrs. KER. Some very commendable *Hippeastrums* were also shown by the firm of LOUIS VAN HOUTTE, PÈRE.

CARNATIONS.

The best Carnations were shown by English nurserymen. Mr. ENGELMANN, Saffron Walden, furnished a good-sized table with a very large number of cut flowers, representing perpetual-flowering and *Souvenir de la Malmaison* varieties. Mr. ENGELMANN experienced considerable difficulty in getting his flowers to the exhibition, but, notwithstanding this fact, many of the blooms looked in excellent condition, especially the deep maroon-crimson variety *Carola*. A large Gold Medal was awarded for this exhibit.

Messrs. STUART LOW & Co., Bush Hill Park Nursery, Enfield, furnished about two dozen *epergnes* with well-developed flowers of the tree and *Souvenir de la Malmaison* sections. White Perfection, belonging to the former section, was in grand condition. (Gold Medal.)

The interesting nursery of M. FRANTZ DE LAET, at the little Flemish village of Contich, near Antwerp, was represented by a small group of Cactaceous plants, some of them grafted specimens. M. DE LAET raises very large numbers of *Cactus* from seeds every year, whilst his grafted plants, some of them with two or more kinds upon the same stock, possess very great interest.

Specimens of much larger size were shown by M. G. PETRICK, Nurseryman, Ghent, in a competitive class, and gained the 1st prize offered for this type of plant.

An exhibit of hybrid *Gerberas* was made by Mr. R. ADNET, Cap d'Antibes, the flowers being placed in a semi-circular space on the floor of the building. The exhibit fell far short in attractiveness when compared with the beautiful group shown by M. ADNET at the Berlin exhibition last year. At the same time, some of the shades of red and crimson appeared to be deeper and richer than those shown previously, thus indicating still further variation in these dainty flowers.

A gay display was made by a large semi-circular group of plants exhibited by M. DE BIEVRE, head gardener to the King. The background of the group consisted of very large plants of *Hydrangea hortensis*, having deep blue flowers. In front of these blue *Hydrangeas* other plants were arranged in the form of ribbons, including pink *Hydrangeas*, *Schizanthus Wisetonensis*, *Cineraria Boule de Neige*, *Cineraria Bleu d'Azur*, *Begonia Gloire de Lorraine*, and *Celsia Arcturus*. The varieties of *Cineraria* have both a dwarf, compact habit, *Boule de Neige* being especially worthy of recommendation for its large, pure-white flowers. All the plants forming this group represented good cultivation, and this was recognised in the award of a Diploma and Large Gold Medal.

Messrs. VILMORIN, ANDRIEU ET CIE., Paris, arranged some floral specialties in the form of a brilliant *parterre*. The beds contained *Cineraria Boule de Neige* (already mentioned as being in the exhibit from Laeken), also stellate and cactus-flowered *Cinerarias*, herbaceous *Calceolarias*, *Primula obconica*, and a distinctly coloured *Cineraria* known as *Matador*. All these plants were excellent specimens, and represented strains equal to the best. A number of medals were awarded Messrs. VILMORIN, ANDRIEU ET CIE in various classes.

Some very interesting varieties of *Hydrangea hortensis* were shown by M. E. MOULLIÈRE VENDOME, France. The variety *Mme. E. Moullière* had white flowers 4 inches in diameter, with fimbriated margins; another, known as *Mme. A. Riverain*, was rich pink, but free from fimbriation, and less in size. These *Hydrangeas* are worth attention, being remarkable novelties.

Primula obconica was well shown by M. GUSTAVE FILLÉE, Avenue Circulaire, Uccle, the

flowers being extremely large and showing the colour development which has recently taken place in this species.

It has already been stated that fine foliage plants constituted a prominent feature of the Show, being equal to those exhibited last year at Berlin. The best collection of 25 plants with striped, marbled, or variegated foliage, was shown by the SOCIÉTÉ ANONYME HORTICOLE, Ghent, and the best dozen plants came from M. ALEXIS DALLIÈRE, Ledeberg, Ghent. The firm of LOUIS VAN HOUTTE, PÈRE, Ghent, showed a fine collection of *Sonerillas* and *Bertolonias*, the brilliantly-coloured being little plants in first-rate condition.

MM. PENNINGCK ET FILS, Rue d'Argile, Gendbrugge, showed some well-developed *Dracenas* in considerable variety, gaining 1st prizes for 25 plants with coloured foliage, 12 new varieties, and several single specimen plants. M. GUILLAUME GYSELINCK, Melle, was another successful exhibitor of *Dracenas*, gaining a 1st prize for 25 plants of a variety with red-coloured leaves.

Bromeliads are always shown better and in larger numbers in Belgium than in England, and *Vriesias* were particularly good at Brussels. The best group of *Bromeliads* of 30 specimens was contributed by the well-known amateur, M. FIRMIN DE SMET, Chateau de Schonwbroek, Vinderhaute, while M. ALEXIS DALLIÈRE, Chaussée de Bruxelles, Ledeberg, Ghent, won a 1st prize for 25 plants.

In the section for Aroids, the principal plants were *Anthuriums*, and for these M. ARTHUR DE SMET won 1st prizes for 25 specimens in variety and 20 specimens of *A. Scherzerianum* and its varieties. Another prize, offered for 25 specimens, was won by M. CHARLES DIETRICH, Chateau de Val Duchesse, Auderghem. There were many other classes for *Anthuriums*, and one for *Caladiums*; we have only mentioned the most important. The *Caladiums* were not superior to the usual exhibits of these plants in England.

Turning to the classes for Palms, it may be said that some of the specimens in this section were noticeable for their free development and fresh appearance, but we did not discover anything perfectly new in the way of variety. Some of the specimens of *Phoenix Roebelinii* were very beautiful, again demonstrating the superlative decorative qualities of this graceful species. *Cocos Bonnetii* was also shown well, and many of the commoner species. The largest collection of Palms was shown by the SOCIÉTÉ ANONYME, "Flandria," Bruges.

There were groups of well-grown Ferns of popular species and varieties, but the specimens were not of great size. Some of the principal exhibitors, including M. PYNART VAN GEERT, Ghent; MM. L. & G. DURIEZ FRÈRES, Wondelghem, Ghent; MM. L. JACOB-MACKOY ET CIE., Liège, and the STATE SCHOOL OF HORTICULTURE, Ghent.

The presence of considerable numbers of hard-wooded greenhouse plants, natives of the Cape and New Holland, gave a distinct complexion to the show. These species used to be grown largely in England, but there are now very few collections in cultivation, and these few are in nurseries. Even in Belgium they are far less appreciated than formerly, and it is doubtful if there is any amateur who exhibits much enthusiasm for them beyond M. FIRMIN DE SMET, of Vinderhaute. This disinterested amateur was responsible for all the best specimens at the exhibition, and he gained 1st prizes for 25 plants, representing the largest specimens; 15 plants, and for single specimen plants of *Correa*, *Boronia*, *elatiar*, *Acacia longifolia*, *Clianthus*, *Cytisus racemosus*, *Grevillea*, *Lithospermum fruticosum*, *Polygala*, *Trachelospermum jasminoides*, *Erica*, &c. Collections of New Holland plants of a size suitable for commerce were best shown by MM. DAENINCK FRÈRES, Evergem, Ghent.

It is seldom that visitors to a horticultural show, whether national or international in its character, have the opportunity of seeing such a fine collection of Lilacs as was shown at Brussels by M. FLOPENT STEPMAN DE MUSSIMAEKER, Molenbeek. The plants were in pots, and they not only represented an extraordinary number of varieties, both single and double, but each plant was a well cultivated specimen, bearing a fine lot of bloom. We noticed, amongst the best varieties, *Lucie Baltet* (pale primrose), *Roi Albert* (violet-coloured, single), *Louis Spath* (the best of the deep violet-coloured varieties), *Princess Clementine*

(double white), and Francisque Morel (single, pale primrose). This exhibitor was awarded 1st prizes for the most representative collection, and for collections of 50 varieties, 20 varieties, 12 plants with stems less than one metre, and 12 plants cultivated in small pots.

Araucarias being one of the staple products of the Ghent nurseries, it was not surprising that these plants were well represented. A collection of large specimens, which exhibited considerable variety and included *A. Cunninghamii* and *A. excelsa gracilis*, was contributed by M. M. J. P. HARTMANN, Nurseryman, Ghent.

Mme. OSTENRIETH-MOLS, Antwerp, laid out a considerable space in the exhibition with what appeared to be something of a Japanese garden, approached through a Bamboo gateway covered with Wistarias in flower. There were Japanese temples, and water, with a rustic bridge, &c., whilst the background of painted scenery also represented a Japanese temple in the crudest colouring. Many of the principal plants chosen to furnish the garden were Australian species, and the mixture of colour was by no means pleasing.

FRUITS AND VEGETABLES.

The season was not sufficiently far advanced for a large display of fruit, nevertheless, there were several collections. The most representative exhibit was made by MM. CORDONNIER & FILS, Bailleul, France. This firm showed Black Hamburgh and Frankenthal Grapes, also Peaches, Plums, Cherries, and Strawberries, all in ripe samples. MM. CORDONNIER were awarded a Gold Medal worth 200 francs. Excellent Strawberries were also shown by NEDERLANDSCHE TUINBONWRAAD (Federation Horticole des Pays-Bas), Holland.

A first-class collection of all the vegetables in season was contributed by MM. VILMORIN-ANDRIEUX ET CIE., Paris, who, with the NEDERLANDSCHE TUINBONWRAAD, were awarded equal 1st prizes (Gold Medals). In MM. VILMORIN-ANDRIEUX ET CIE.'s exhibit there were many varieties of Lettuces, Cabbages, Carrots, Onions, Leeks (excellent), Turnips, Asparagus, Peas, Potatoes, Beans, Spinach, Salads, &c.

M. PARAS, Chateau Royale, Laeken, contributed a number of frames containing vegetables and salads, and representing the system of forcing vegetables common in the neighbourhood of Paris, and known in England as "French gardening." This kind of intensive cultivation has been much exhibited of late, but, nevertheless, the exhibit from M. PARAS was one of the very best description, being far more representative of the different kinds, both of vegetables and salads, than the similar exhibits sometimes seen in England.

THE FIRST BANQUET.

On the 29th ult., MM. Victor du Pré and Firmin Lambeau offered a banquet to the members of the jury, the management committee of the show, and the Councils of the Royale Société de Flore and the Royale Société Linnéenne. There were 98 present. Amongst those present were MM. V. du Pré and Lambeau, the Duc d'Ursel (General Commissioner of the Government), MM. E. Keym (Director-General of the Executive Committee), Storm (General Secretary of the Commissary Office), Truffaut (President of Jury), Arthur de Smet (President of the Superior Council of Horticulture), Brake (General Secretary of Jury), Count A. de Ribaucourt, F. de Smet, Jaczewsky, and Y. Kagami (Director of Horticultural College, Chibaken, Japan).

M. Victor du Pré referred to King Leopold, who had always helped Belgian horticulture as far as possible, and who was in the habit of describing himself as a gardener. M. Victor du Pré was glad that King Albert, by visiting the international show, gave evidence of his desire to follow in his late uncle's footsteps in respect to his patronage of horticulture.

M. Lambeau said he was rejoiced at the success of the show, which was due to the valuable services rendered by the General Commissary, and all who were connected in an official capacity with the arrangements.

M. du Pré, in returning thanks for a toast to himself and M. Lambeau, proposed by M. Truffaut, said they were all deeply indebted to M. Louis Gentil, the secretary, who had worked splendidly, rendering valuable service.

In M. Truffaut's speech the speaker drew special attention to the desirability of free horticultural trading between all countries.

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 3.—There was again a bright display at the meeting held on Tuesday last, and the attendance was very large. The exhibition of the National Auricula and Primula Society being held at the same time, caused a greater demand than ever on the space. A very large number of novelites was submitted to the FLORAL COMMITTEE for award, no fewer than 11 Awards of Merit being conferred. The principal exhibits in this section were Roses, Carnations, forced plants, Ferns, and hardy plants.

The ORCHID COMMITTEE also made several awards, including three First-class Certificates, two Awards of Merit, and one Botanical Certificate.

The NARCISSUS COMMITTEE made two Awards of Merit to new varieties.

The most important exhibit in the FRUIT and VEGETABLE COMMITTEE was a display of vegetables shown by Messrs. SUTTON & SONS. This body made no award to a novelty.

At 3 o'clock, in the Lecture-room, Dr. A. Henry delivered a lecture on "Future Forest Trees."

Floral Committee.

Present: Henry B. May, Esq. (in the Chair), with Messrs. John Green, T. W. Turner, Chas. T. Drury, W. J. Bean, G. Reuthe, J. F. McLeod, C. R. Fielder, W. Bain, Arthur Turner, Chas. Dixon, H. J. Jones, G. Paul, J. T. Bennett-Poë, Chas. E. Pearson, E. H. Jenkins, Wm. J. James, R. C. Reginald Nevill, F. Page Roberts, R. C. Notcutt, Jas. Hudson, A. Kingsmill, W. B. Cranfield, J. W. Barr, Edward Mawley, E. T. Cook, James Walker, Geo. Gordon, and W. P. Thomson.

Messrs. S. Low & Co., Bush Hill Park, Enfield, showed splendid Carnations, including Rival, Red Enchantress, Mrs. Chas. Knapp, Winsor, White Enchantress, Royal Purple, and Britannia. This firm sent also a new Pink named Gloriosa, and beautiful decorative Roses. (Silver Banksian Medal.)

Messrs. PAUL & SON, Cheshunt, exhibited Philadelphia Mer de Glace, Prunus Pissardii nigra, Osteomeles anthyllidifolia, Illicium religiosum, and Vitis Cointetia.

Mr. D. H. PAGE, Tangley Nurseries, Hampton, staged Carnations of the winter-flowering type in good form and colour. Fine varieties were Mrs. T. W. Lawson, Enchantress, and Britannia. (Bronze Flora Medal.)

Messrs. W. CUTBUSH & SONS, Highgate, showed magnificent Carnations, including The President, Jessica, Mikado, Mrs. Burnett, Britannia, Winsor, White Perfection, Lady C. Waring, Rose Doré, Marmion, and Afterglow. The same firm also displayed flowering shrubs and rock plants. (Silver Flora Medal.)

Messrs. J. VEITCH & SONS, LTD, Chelsea, had a varied exhibit, each individual in which was of merit. Carnations Enchantress, Britannia, White Mrs. T. W. Lawson, Beacon, Winsor, and Mrs. T. W. Lawson; Primula obconica grandiflora alba, Richardia Elliottiana, Saxifraga decipiens grandiflora, hybrid Gerberas, Meconopsis integrifolia, Primula Unique, and white and rose forms of double Daisies, with immense flowers, were all splendid. Messrs. VEITCH also contributed plants of an exceptionally good strain of Schizanthus and Hydrangea hortensia, H. h. rosea, H. h. Mariesii, H. h. Ornament, with Lilacs and other flowering shrubs. (Silver-gilt Flora Medal.)

Brilliance of colour and immense size were conspicuous in the collection of Zonal Pelargoniums sent by Messrs. H. CANNELL & SONS, Swanley. Hall Caine, Saturn, Vesta, Neptune, Barbara Hope, Paris, Duke of Bedford, Ascott, Uranus, Hibernian, Snowstorm, and Umbria were particularly good.

Mr. G. H. CUTHBERT, Southgate, had a magnificent group of flowering and foliage trees and shrubs. The Lilacs, Azaleas, and Laburnums were superb. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, exhibited very fine Clematis, including Marcel Moser, Miss Bate-man, Lord Napier, Fair Rosamond, Sir Garnet Wolseley, Nellie Moser, and others.

Mr. H. J. JONES, Ryecroft, Lewisham, exhibited a particularly attractive collection of Zonal Pelargoniums, as well as some splendidly-grown and flowered Polyanthus.

Messrs. H. B. MAY & SONS, Edmonton, dis-

played a small group of hardy Ferns, in which varieties and excellence of culture were conspicuous features. The same firm also showed some beautifully-flowered Verbenas and Pansies in boxes. (Silver Banksian Medal.)

Messrs. F. CANT & Co., Braiswick Nursery, Colchester, arranged a collection of Roses, including such decorative varieties as Lady Gay, Débutante, White Dorothy Perkins, Evangeline, Stella, and Yellow Banksian in pots, with cut blooms of Gustav Grunerwald, Duke of Wellington, Hugh Dickson, Goldfinch, Lady Roberts and Caroline Testout.

Messrs. WM. PAUL & SON, Waltham Cross, showed an attractive group of Roses in pots, the plants being healthy and splendidly flowered. Very beautiful varieties were Paradise, Kathleen, Elsie, Hiawatha, Fairy, Cynthia, Orcana, Excelsa, and Flower of Fairfield. (Silver Flora Medal.)

Roses were grandly shown by Messrs. GEORGE MOUNT & SONS, Canterbury. There were superb blooms of Frau Karl Druschki, Joseph Lowe, Liberty, Mme. Abel Chatenay, Lady Hillingdon, Richmond, White Killarney and Caroline Testout. (Silver Banksian Medal.)

Mr. GEORGE PRINCE, Longworth, Berks., staged a beautiful group of Roses, including varieties of the exhibition and decorative sections.

Messrs. B. R. CANT & SONS, Colchester, arranged a splendid group of Roses, in which the most conspicuous were The Garland, Trier, Tea Rambler, Alberic Barbier, Austrian Copper, Harrisonii, and Blush Rambler, with many exhibition varieties. (Silver Flora Medal.)

Messrs. T. S. WARE, LTD., Feltham, made a most charming display with hardy plants, mostly suitable for rock-gardens. The arrangement was very effective, and there were representatives of practically all the kinds that are now in flower. (Silver Flora Medal.)

Messrs. R. WALLACE & Co., Colchester, showed rock and Alpine plants in their customary excellent and artistic manner. Some of the best plants were Aubrietia Dr. Mules, Androsace Chumbyi, Saxifraga Clibranii, S. flore pleno, S. decipiens grandiflora, Phlox divaricata, and hybrid Gerberas.

Anemones were brilliantly staged by Messrs. GILBERT & SONS, Dyke, Bourne, Lincolnshire, King of the Scarlets being the best variety.

Messrs. SUTTON & SONS, Reading, contributed a group of Cinerarias. The plants were of medium height and remarkably free-flowering; the habit was graceful.

Messrs. DOBBIE & Co., Rothesay, staged a characteristic group of Violas and Pansies. The former were remarkable for their size and substance, as well as for the clear brilliance of the colours. Of these and the superb Pansies many varieties were represented. (Silver Banksian Medal.)

Messrs. G. & A. CLARK, Dover, had a bright and varied group of hardy plants, comprising many suitable for borders as well as rock-gardens.

Messrs. BARR & SONS, Covent Garden, had a small but charming group of rock and Alpine plants.

Messrs. BAKERS, Wolverhampton, arranged a collection of Saxifragas in considerable variety and of great interest. Some new colours were observable. (Silver Banksian Medal.)

Messrs. J. CARTER & Co., High Holborn, staged rock plants, among which forms of Primula Sieboldii and Fritillarias were noticeable.

Messrs. G. JACKMAN & SON, Woking, sent herbaceous and rock plants in great variety. There were Trolliuses, Trilliums, Meconopsis, Auriculas, Primulas, Irises, Phloxes, and others, all in excellent form. (Bronze Flora Medal.)

Mr. G. REUTHE, Keston, sent rock and Alpine plants in variety, with a few Rhododendrons.

Messrs. GUNN & SONS, Olton, showed bright baskets of Viola cornuta purpurea and Ranunculus montana.

Mr. CHARLES TURNER, Slough, showed a charming collection of Primula Sieboldii in baskets.

Mrs. LLOYD EDWARDS, Bryn Oerog, Llangollen, showed baskets of Saxifragas, Aubrietias, and Auriculas.

THE GUILDFORD HARDY PLANT NURSERY, Millmead, Guildford, showed a varied group, comprising many excellently-grown and flowered rock, Alpine, and border plants.

A profusely-flowered rockery was arranged by the Misses HOPKINS, Mere Gardens, Shepperton, Middlesex. There were Auriculas, Phloxes, Primroses, Daisies, Daphnes, and Gentians in charming form. (Bronze Flora Medal.)

Mr. H. BURNETT, St. Margaret's, Forest Road, Guernsey, contributed a magnificent collection of Carnations; the superb blooms were handsomely shown. Some good varieties were Winsor, Pink Delight, Enchantress, Bridesmaid, Fortuna, White Perfection, Wanoka, Pluto, Mrs. W. B. Clode, Beacon, Emperor, Mrs. H. Burnett. (Silver Banksian Medal.)

Mr. G. KERSWILL, Bowhill Nurseries, St. Thomas, Exeter, contributed a small exhibit, but it was nevertheless most attractive, for it was wholly comprised of grand flowering plants of *Gentiana acaulis*.

Messrs. HEATH & SON, Cheltenham, arranged a group of rock and Alpine plants, comprising the leading kinds now in blossom both in and out-of-doors. The plants were small, but well grown and staged.

Mr. C. ELLIOTT, Six Hills Nursery, Stevenage, contributed a rockery in which Saxifragas, Iberis, and Morisia hypogæa were conspicuous.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, constructed a rock-garden in the artistic manner for which this firm has become famous. Flowering plants were effectively utilised, with Acers and other shrubs whose value lies in their leafage.

Mr. H. C. PULHAM, Elsenham, Essex, arranged a rockery with such flowering plants as Aubrietias, Iberis, Androsaces, Saxifragas, and Gentians as effective features.

Mr. AMOS PERRY, Enfield, Middlesex, included in his fine group of rock and Alpine plants *Caltha palustris* fl. pl., *Geum miniatum*, *Anemone apennina* alba, *Ramondia pyrenaica*, *Saxifraga Rhei* superba, *Trillium grandiflorum*, *Arnebia echioides*, *Anemone Robinsoniana*, *Euphorbia pilosa* major, and *Corydalis nobilis*. (Silver Flora Medal.)

Messrs. B. LADHAM & SONS, Shirley Nurseries, Southampton, staged fine plants of a bedding *Polyanthus* of decided merit, named *Ladhams' Brilliant*.

The BURTON HARDY PLANT NURSERIES, Christchurch, Hants., staged a group of rock and Alpine plants in pots, including *Primulas*, *Ramondias*, *Daphne cneorum*, *Incarvillea Delavayi*, *Gentians*, and others. (Silver Banksian Medal.)

Mr. JAS. DOUGLAS, Edenside, Great Bookham, showed handsome pot plants of *Myosotidium nobile*, as well as excellent Auriculas.

Messrs. GARRAWAY & Co., Bristol, staged magnificently-grown plants of *Schizanthus* in variety. (Silver Banksian Medal.)

A group of *Schizanthus* showing much merit was exhibited by W. NOAKES, Esq., Croydon. (Silver Banksian Medal.)

Messrs. CARTER PAGE & Co., London Wall, staged a good variety of *Violas* and a few other hardy flowers.

A small group of excellent *Gloxinias* was arranged by Messrs. FRED & SONS, West Norwood; on each side were grandly-grown and flowered plants of a conspicuously good strain of *Streptocarpus*. This firm also sent Acers and Clematis in variety. (Silver Banksian Medal.)

Mr. F. H. CHAPMAN, Rye, arranged a small group of the Herbert Chapman *Freeseas*. These are healthy, vigorous plants, carrying an abundance of fragrant yellow and orange blossoms.

AWARDS OF MERIT.

Anemone nemorosa *Allenii*.—A very fine variety, with large, lavender-mauve blossoms. Shown by Mr. AMOS PERRY.

Auricula *Canary Bird*.—A pure yellow self of great size. Shown by Mr. JAS. DOUGLAS.

Auricula *Mal*.—A crimson self, with a solid pure white paste. Shown by Mr. JAS. DOUGLAS.

Auricula *Dorothy Cutts*.—A self variety, the colour being yellow, with a suspicion of rose extending from the margins. Shown by Mr. JAS. DOUGLAS.

Carnation *Mrs. C. T. Raphael*.—A superb perpetual blooming variety, with much of the appearance of a "Malmaison." The colour is rich rose-pink. Shown by Mr. H. BURNETT, Guernsey.

Hydrangea Hortensia *Madame Emile Mouil* lère. —A very large-flowered variety, with slightly

serrated margins. The colour is paper white. Shown by Messrs. JAS. VEITCH & SONS, LTD.

Hydrangea Hortensia *Ornament*.—A charming blush-coloured variety, with serrated margins. Shown by Messrs. JAS. VEITCH & SONS, LTD.

Schizanthus *Veitch's Grandiflora hybrids*.—A strain that is of splendid habit and greatly varied in colour. Shown by Messrs. JAS. VEITCH & SONS, LTD.

Macleania insignis.—A warm house plant, which is especially conspicuous for the rich orange-bronze of the young growths. The flowers are produced in bunches like an *Epacris*, their colour being reddish-scarlet. It belongs to the *Vacciniaceæ*, and is figured in the *Bot. Mag.*, tab. 7694. Shown by Messrs. JAS. VEITCH & SONS, LTD.

Osmunda palustris crispato-congesta.—A very dwarf, hardy, crested variety, with bronze-green fronds. Shown by Messrs. H. B. MAY & SONS, Edmonton.

Polyanthus *Ladhams' Brilliant*.—A vigorous variety, producing large flowers of crimson colour. Shown by Messrs. B. LADHAMS & SONS, Shirley, Southampton.

Narcissus Committee.

Present: H. B. May, Esq. (Chairman), and Messrs. W. Poupard, H. A. Denison, W. Goldring, E. M. Crosfield, Alex. M. Wilson, R. W. Wallace, Chas. T. Digby, G. W. Leak, Joseph Jacob, J. D. Pearson, J. T. Bennett-Poe, R. W. Sydenham, W. T. Ware, E. Willmott, Christopher Bourns, and J. Walker.

Miss F. M. CURREY, Lismore, Ireland, showed a choice exhibit of Daffodils, including *Cygnets*, *Will Scarlett*, Lord (a superb *Poeticus* variety with a richly-coloured crown), *Maggie May*, *Beacon* (with a rich cup), *Avalanche* (a fine, drooping, white *Ajax* variety), and *Una* (a widely-winged *incomparabilis*).

Messrs. R. H. BATH, LTD., Wisbech, staged many choice and rare Daffodils, in addition to a fine display of Tulips. Amongst the *Narcissi*, *Unique* (with apricot trumpet), *Dream* (a fine white *Ajax* kind), *Weardale Perfection*, *Harmony* (a pretty, bicolor *Ajax* variety), *Larissa* (a gloriously-coloured *Engleheartii*), *Fusilier* (with orange crown), *King Alfred* (the king of yellow *Ajax* varieties), *Will Scarlett*, and *Marie Hall* (a *Johnstonii* hybrid) were the best.

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, had many handsome varieties of *Narcissi*, of which *Rudyard Kipling* (a *Poeticus* variety), *King Alfred*, *Monarch* (a refined, self, yellow *Ajax* flower), *Graham Hyde* (a very handsome, yellow, self variety), *King's Norton*, *Red Sunset* (a brilliant-eyed *Engleheartii*), *Ariadne*, and many beautiful triandrus hybrids of merit may be mentioned. (Silver Flora Medal.)

Messrs. ROBERT SYDENHAM, LTD., Birmingham, staged a choice assortment of Daffodils. *Cavalier* and *Seville* are both remarkable *Engleheartii* varieties. *White Slave*, *White Lady*, and *Evangeline*, of the *Leedsii* set, and *Wave Crest* (a triandrus hybrid with broad segments), *Peveril* (a perfectly-formed variety of the dolly-cap section), *Firebrand*, and *Beacon* (also of the same group with intensely-coloured crowns) were conspicuous. (Silver Banksian Medal.)

Mr. F. LILLEY, Bulb Grower, Guernsey, had a showy group of cottage May-flowering and Darwin Tulips.

Messrs. R. W. WALLACE & Co., Colchester, had a glorious display of Darwin Tulips, of which Mrs. Farncombe Sanders, Antony Rootzen, Isis, Rev. H. Ewbank, Lilac Mauve, *Pride of Haarlem* and *Clara Butt* were the best.

Messrs. BARR & SONS, Covent Garden, exhibited a choice selection of Daffodils. Notable varieties were *Socrates* (a very big *Poeticus* variety), *Glitter* (in the way of *Barrii* conspicuous), *Masterpiece* (*Engleheartii*, with an intensely-coloured crown), *Charles Surface* (an *Engleheartii* of exceptional substance, and deep colouring), *Will Scarlett*, *Occident* (red cup), and *Eros* (*Engleheartii*). There were also many triandrus and *Johnstonii* hybrids of great beauty and charm. (Silver-gilt Banksian Medal.)

AWARDS OF MERIT.

Narcissus *Cooksoniae*. — A creamy-white-flowered variety of the *Leedsii* type, with broad, overlapping perianth segments and a more than usually prominent, horizontally-disposed crown. From Mrs. NORMAN COOKSON, Wylam-on-Tyne.

N. Colleen.—A remarkable novelty, and prob-

ably one of the most distinct of modern breaks in this flower. It may be described as a flower midway between *N. poeticus recurvus* and an *Engleheartii* variety, having the recurved if less white perianth of the former in conjunction with an *Engleheartii* crown edged with deep primrose, shaded yellow, and with a base of deep green. The variety has the fragrance of *N. poeticus*. Shown by Messrs. R. WALLACE & Co., Colchester.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Talbot Clifton, H. Little, W. Boxall, Stuart Low, de B. Crawshaw, R. Brooman White, J. Wilson Potter, H. Bolton, Gurney Wilson, W. H. White, H. A. Tracy, H. G. Alexander, Arthur Dye, W. H. Hatcher, W. P. Bound, W. Cobb, F. J. Hanbury, F. Menteith Ogilvie, A. A. McBean, and J. Charlesworth.

Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander), showed *Cattleya Mendelii* *Westonbirt* variety, a superb form, and a grand example of fine culture, the specimen having six flower-spikes, bearing altogether 17 large, bluish-tinted flowers, with carmine-crimson labellums; the pretty, pale yellow, red-blotched *Odontoglossum Asphodel*, and two others. (See Awards.)

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed *Odontioda* × *Charlesworthii* var. *Theodora* (see Awards), and an interesting set of new hybrid *Odontoglossums*, including *O. Elektra*, *O. Zena* (*Harryanum* × *scepttrum*), and *O. Hellas* (*Hallii* × *Crawshayanum*).

E. ROGERSON, Esq., West Didsbury, Manchester (gr. Mr. Price), showed *Odontoglossum crispum* *Oakdene Gem*, a very evenly-blotched variety; *Cypripedium niveum* *Oakdene* variety, with large and pure-white flowers; *C. Berkeleyanum* *Oakdene* variety; and *C. Berkeleyanum* *Exhims'* variety, the last-named a fine form nearest to *C. bellatulum*.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for an excellent group of hybrid *Odontoglossums*, fine forms of *O. crispum*, *Odontiodas*, *Lælio-Cattleyas*, and other Orchids. At the back of the group were *Dendrobium Dalhousianum*, *Phaius Norman*, and the variety *roseum*; several plants of the deep-yellow-flowered *Lælio-Cattleya Elinor*, and other showy hybrids. Among the species were the pretty little *Capanemia uliginosa*, with slender sprays of white flowers, several examples of the pure white *Tricophila Backhouseana*, *Octomeria diaphana*, the rare *Cologynae Rossiana* (*Rhodeana*), with slender sprays of silver-white flowers, *Acineta Humboldtii*, *Bulbophyllum Lobbii*, and other interesting species.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a good and varied group, in which were several very distinct novelties, including *Cypripedium Curtisii* *Sander's* variety, a large and intensely-dark-coloured form, the basal halves of the petals being of a deep vinous-purple; and *Dendrobium Wardianum melanoleucum*, a fine white form. Among the *Cattleyas* were several remarkable forms of *C. Schröderæ*, one having a plum-purple shaded lip, and another a disc of bronzy-gold. Six plants of a remarkably dark type of *Cattleya Mossiæ* were shown as examples of a recent importation. A specimen of *Lælio-Cattleya Choletiana* had five fine heads of bloom; *Cattleya Mirabile* (*Luddemanniana* × *Mendelii*), with various other *Cattleyas*, were included in the exhibit.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, Chelsea, showed *Brasso-Lælio-Cattleya* *Pink Beauty* (*L.-C. Hippolyta* × *B.-C. Digbyano-Mossiæ*), a neat, pink-tinted bloom; and, in the centre of a pan of the Violet-like *Pinguicula grandiflora*, a plant of the pretty, dwarf *Calypso borealis*.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), staged a group in which the best plants were *Brasso-Lælio-Cattleya Veitchii*, a finely-formed flower; *Cattleya Mossiæ* *Queen Isabella*, with lavender-tinted blooms; *C. Mendelii* *H. A. Tracy*, a pretty variety, which received an Award of Merit in 1894; *C. M. Goodson's* variety, with a finely-coloured lip; *Brasso-Cattleya* *Queen Alexandra*; *Cattleya Schröderæ* *alba*; and *Odontoglossum* *Mrs. F. Peeters*.

Mr. GURNEY WILSON, Haywards Heath, showed the large and handsomely-blotched *Odontoglossum crispum* *Empress of India*, with a grand spike of finely-developed flowers.

Mr. E. V. Low, Vale Bridge, Haywards Heath, showed *Cattleya Mendelii* Lambeauana, a pretty white flower, with pale lilac front to the lip; another large and finely-coloured *C. Mendelii*; *Coelogyne pandurata*; and a very large and dark form of *Laelio-Cattleya Dominiana*.

Messrs. J. & A. A. McBEAN, Cooksbridge, showed a selection of their fine forms of *Odontoglossum crispum*, with several hybrid *Odontoglossums*, *O. Pescatorei*, and good forms of *Miltonia vexillaria*. The finest in the group was *Cattleya Mendelii* Pearl McBean, which received an Award.

Monsieur MERTENS, Ghent, showed several excellent hybrid *Odontoglossums*, *Miltonia Bleuana*, and *M. vexillaria*.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed *Odontoglossum platycheilum splendens*; the flowers are bright rose-coloured, with rose-purple spotting on the lip.

R. BROOMAN WHITE, Esq., Ardarroch, showed *Cypripedium Nonpareil*, a hybrid somewhat resembling *C. Vipanii*, the white ground being heavily marked with dark purple.

Mr. C. F. WATERS, Deanland Nurseries, Balcombe, staged a small group of well-grown *Cattleya Mendelii*, *Odontoglossum crispum*, and other Orchids.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. Black), showed the new *Odontoglossum Thwaitesii* (ardentissimum \times Harryanum), a very dark and handsome flower, the sepal and petals being bronzy-purple, with a few white markings at the base, and a very thin yellow margin: the white lip is marked with purple.

AWARDS.

FIRST-CLASS CERTIFICATES.

Cattleya Dusseldorfii Undine Westonbirt variety (intermedia *alba* \times *Mossiae* *Wagneri*), from Lieut.-Col. G. L. HOLFORD, C.I.E., C.V.O., Westonbirt (gr. Mr. H. G. Alexander). One of the finest white *Cattleyas*, and larger than the varieties previously shown. The disc of the lip is pale yellow, and at the base are a few blackish dots. The plant bore two spikes, each with four flowers, one being in the bud stage.

Miltonia Bleuana Hesse variety (*vexillaria* *Queen Alexandra* \times *Rocclii*), from W. P. BURKINSHAW, Esq., West Hill, Hesse, Hull (gr. Mr. J. Barker). The flowers are large and of fine form, tinted with pink, and the bases of the petals with purplish-rose. The attractive feature of the flower is the bright reddish-purple mask at the base of the lip.

Odontioda Charlesworthii var. *Theodora* (*C. Noezliana* \times *O. Harryanum*), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks.—This is the finest *Odontioda* yet shown, the flowers being large, of thick substance, fine shape, and of a deep blood-red colour. The plant was splendidly grown, and bore a spike of many flowers.

AWARDS OF MERIT.

Odontoglossum crispum "Magnum Bonum," from Lt.-Col. G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander).—A model flower, circular in outline and broad in all its segments; clear white, with clusters of red-brown spots on the sepals and lip.

Cattleya Mendelii Pearl McBean, from Messrs. J. & A. A. McBEAN, Cooksbridge.—A very large variety, the sepals and petals being bluish white, the broad, wavy-edged petals having a soft purple band on the outer half. The lip is deep mauve-crimson; tube white, disc pale yellow, margin crimped.

BOTANICAL CERTIFICATE.

Disa venusta, from Mrs. BISCHOFFSHEIM, The Warren House, Stanmore (gr. Mr. Taylor).—A slender species of the grassy-leaved section. The blue flowers have a reddish veining in the galea. The lip bears rudimentary papillae. The plant was one of several blue *Disas* in flower at The Warren House.

CULTURAL COMMENDATION.

A Silver Medal was awarded to Mr. May (gr. to J. B. JOEL, Esq.) for a specimen of *Cypripedium Rothschildianum* Northaw variety, with six flower-spikes.

Fruit and Vegetable Committee.

Present: J. Bunyard, Esq. (in the Chair), and Messrs. J. Cheal, C. G. A. Nix, J. Harrison, O. Thomas, P. C. M. Veitch, C. Foster, G. Wythes, H. Parr, J. Lyne, J. Vert, P. D. Tuckett, H. Markham, A. R. Allan, G. Hobday, E. Beckett, A. Dean, F. Perkins, and W. Poupart.

A collection of 30 named varieties of Rhubarb was exhibited from the Society's Gardens, Wisley. The number could well have been reduced to some 10 or 12 varieties, as many were synonymous. Some of the best were Daw's Champion (one of the very finest and earliest), Ellis's Seedling, Ruby, Crimson Perfection, Victoria, Paragon, Early Crimson, The Sutton, Alexandra, Harrison's Seedling, Bedford Scarlet, and Dawe's Challenge.

Earl STANHOPE, Chevening, Sevenoaks (gr. Mr. J. C. Sutton), staged half a dozen finely-preserved bunches of Lady Downe's Grapes and some superb Royal Sovereign Strawberries. (Silver Knightian Medal.)

Messrs. SUTTON & SONS, Reading, set up a superior collection of vegetables in 50 diverse dishes, the whole being arranged on a long table with artistic taste. The display comprised a fine pyramid of Satisfaction Broccoli; two groups of richly-coloured Sutton Rhubarb; Stanstead Park, Golden Ball, and other excellent Cabbage Lettuces; Cabbages Harbinger, April and Flower of Spring; Cucumbers Satisfaction, Lord Roberts, Pride of the Market, and Rochford's Market; two mounds of Early Giant Peas; dishes of Winter Beauty, Perfection and Early Market Tomatos; several dishes of climbing Tender and True and Princess of Wales Beans; Potatos May Queen and a seedling; 20th Century Mushrooms; White Milan and Red Milan Turnips; Carrot Scarlet Gem; good Asparagus; and Mustard and Cress in boxes. (Silver-gilt Knightian Medal.)

NATIONAL AURICULA AND PRIMULA.

MAY 3.—The 34th annual exhibition of the Auricula and Primula Society was held under the auspices of the R.H.S. in the Horticultural Hall, Vincent Square. Of all the 34 exhibitions, this was the best of the series, as regards both the show and Alpine section. The season has not been altogether favourable, but the exhibitors do their best to combat the unfavourable seasons. In the show section, which comprises the green, grey, white and self-edged flowers, the competition for the principal prizes was very keen.

The 1st prize for 24 plants in not fewer than 12 varieties was awarded to Mr. JAS. DOUGLAS, Great Bookham, Surrey. The green-edged varieties comprised Mrs. Henwood, Shirley Hibberd, Abraham Barker, and Prince Charming. In grey edges, the best were George Lightbody (Premium Auricula), Olympus, Marmion and Richard Headley. This last-named variety and George Lightbody have been in cultivation upwards of 60 years. In white edges, the old Smiling Beauty was shown in good form, Heather Bell, Frank, and Eucharis were also exceedingly good. In selfs, Harrison Weir, Belladonna Favourite, and Mrs. Phillips may be mentioned.

WALTER N. SHIPMAN, Esq., of Altrincham, was a good second, with very similar varieties, Olympus, Mrs. Henwood, George Lightbody, Mikado, and Harrison Weir being some of his finer examples. 3rd, Mr. CHARLES TURNER, of Slough.

In the class for 12 show Auriculas, distinct, Mr. DOUGLAS was again awarded the 1st prize. A new variety, with a pure white edge, named Loveliness, was very promising. Seamew, also a white edge, was another outstanding variety. Victor, self, of a rich maroon shade, is also deserving of mention. WILLIAM SMITH, Esq., of Bishop's Stortford, was awarded the 2nd prize for a choice lot, which comprised some fine seedling varieties. Pilot, a violet blue self, was noteworthy, but, like all the variety of this type, it has a pale tube. Majestic is a good dark self variety. Messrs. PHILLIPS & TAYLOR were placed 3rd.

In the class for six varieties, W. H. PARTON, Esq., of Birmingham, exhibited six very fine examples, and won the 1st prize. The varieties were Mrs. Henwood, Favourite, Mikado, George

Lightbody, George Rudd, and Shirley Hibberd. 2nd, JOHN T. BENNETT-POË, Esq., Ashley Place, S.W., his finest examples being Mikado and Harrison Weir. 3rd, Mr. F. W. PRICE, of Beckenham, Mrs. Henwood, Olympus, and Acme being his best specimens.

The last-named exhibitor was placed 1st in the class for four varieties of which Olympus and Shirley Hibberd were the best.

Messrs. PHILLIPS & TAYLOR had the best green-edge Auricula, Mrs. Henwood, in the class for single blooms. Mr. BENNETT-POË was placed 2nd, also with Mrs. Henwood.

Mr. J. DOUGLAS had the best grey-edge in his plant of George Lightbody, Mr. SHIPMAN being placed 2nd with the same variety.

For white-edged varieties, Mr. BENNETT-POË won the 1st prize with Acme; 2nd, Mr. F. W. PRICE, also with Acme.

In the class for selfs, Mr. DOUGLAS was placed 1st with Queen of Spain; 2nd, Mr. BENNETT-POË, with Mikado.

The seedling class was not very satisfactory. Mr. WM. SMITH was awarded the 1st prize in the green-edged class, with Emerald, and he also won the 1st prize in the self class, with Viscount, and 2nd with Countess.

In the class for those who have never won a prize, J. L. GIBSON, Esq., of Leatherhead, won the 1st prize and the silver medal offered by Mr. Wm. Smith. Mr. GIBSON had good plants of Marmion, George Lightbody, Mikado, and Rev. F. D. Horner. 2nd, H. R. TAYLOR, Esq., of Cheam; 3rd, RUDOLPH BIER, Esq., Bickley; 4th, F. H. HARRISON, Esq., of Leyton. All staged good and highly-creditable specimens, considering they were amateurs exhibiting for the first time.

ALPINE AURICULAS made a brilliant display. They were exhibited in quantity and of superb quality throughout. In the class for 24 plants in 12 varieties, Mr. DOUGLAS was 1st. In the gold-centred class, Olivia, Claud Halero, Ettrick, Rosythorn, and Mrs. Pinkham were the best. The choicest of the white or cream-centred varieties were Argus, Mrs. J. Douglas, Phyllis Douglas, Admiration, and Janet. Messrs. PHILLIPS & TAYLOR were a good 2nd. In gold centres they had Majestic, Duke of York, Charmer, Her Grace; and, white-centres, Argus, Thetis, and Teviotdale.

For 12 varieties distinct, Mr. DOUGLAS was again placed 1st, Messrs. PHILLIPS & TAYLOR being awarded the 2nd prize, both with similar varieties as in the previous class.

Mr. C. C. PRICE, of Brentwood, won the 1st prize in the class for six varieties with good examples of Duke of York, Uranic, Rosy Morn, and Blue Bell. 2nd, Mr. F. W. PRICE, Beckenham, Teviotdale, Rosy Morn, Argus, and Majestic being the choicest specimens. Mr. SHARNAND, of The Gardens, Panshanger, and Mr. W. H. PARTON also showed well in this class.

In the class for four plants, Mr. F. W. PRICE was placed 1st, and Mr. PARTON 2nd.

Duke of York, from Mr. C. C. PRICE, was the best gold-centred Alpine Auricula.

W. B. CRANFIELD had the best white-centred Alpine in Thetis.

In the class for amateurs who have not previously exhibited, Mr. J. L. GIBSON obtained the 1st prize with a very fine set of six plants, Argus, Admiration, and Duke of York being the best. 2nd, CHARLES G. BUTLER, New Cross.

Mr. DOUGLAS exhibited a selection of fancy Auriculas, and obtained the 1st prize in the class for these plants. Three of the varieties obtained Awards of Merit from the Royal Horticultural Society; these were Dorothy Cutts (of a bronzy tint), Canary Bird (a handsome golden yellow, of large size), and *Mai* (a scarlet self, distinct in colour and of great merit).

A good group of garden Polyanthus, shown by Mr. S. MORTIMER, Rowledge, Farnham, Surrey, was awarded the 1st prize, Mr. STAWARD being placed 2nd.

H. S. BENFLEET, Esq., Shooter's Hill, had the best single specimen of Polyanthus; 2nd, Messrs. STORRIE & STORRIE, Glencarse, Perthshire.

Mr. R. STAWARD was awarded the 1st prize for 12 specimens of coloured Primroses.

Messrs. STORRIE & STORRIE put up a fine group of Polyanthuses, for which the 1st prize was awarded. Mr. MORTIMER and Mr. JOHN CROOK also exhibited in this class.

MIDLAND DAFFODIL.

APRIL 23, 29.—The twelfth annual exhibition of this society, held at the Botanical Gardens, Edgbaston, on these dates, was not only one of the biggest, but also one of the best all-round exhibitions held under the auspices of the society. The exhibits were contained in the large exhibition hall, part of the adjoining Palm house, and in the entrance corridor. Of exhibits in the competitive classes it is almost impossible to speak too highly, especially of the flowers exhibited by Mr. E. M. CROSFIELD, Messrs. CARTWRIGHT & GOODWIN, Mr. P. D. WILLIAMS, Mr. F. H. CHAPMAN, and Mr. N. Y. LOWER. Seedling Daffodils were a feature of the show. The non-competitive exhibits of Daffodils and miscellaneous flowers were both numerous and good, no fewer than 22 medals being awarded to these. Miss CURREY is to be congratulated upon winning her first Gold Medal for Daffodils at Birmingham. The schedule comprised upwards of 50 classes, for which liberal cash prizes, medals and challenge cups were offered. Although the weather was very wet and cold on the first day and showery on the second, the show was visited by a great many Daffodil lovers, including the Lord Mayor and Lady Mayoress of Birmingham. The opening ceremony was performed by the Lady Mayoress.

In the evening Mr. Robert Sydenham entertained about 100 of the principal exhibitors, judges and visitors to dinner at the Grand Hotel, after which an interesting discussion on the show and newest varieties of Daffodils was opened by the Rev. G. H. Engleheart, and continued by other well-known experts.

CUT FLOWERS (OPEN CLASSES).

The principal class was for a collection of 50 varieties of Daffodils (bunch-flowered varieties excluded). Five exhibits were placed before the judges, who awarded the first prize of five guineas to Messrs. CARTWRIGHT & GOODWIN, Kidderminster, for a collection of beautifully fresh, well-arranged flowers, in which were several new varieties. A few varieties of outstanding merit were Circlet, Coventry Patmore, White Slake, Oliver Goldsmith, Neptune, Childe Harold, Hamlet, Salamander, Gold Finch, Homespun, Peter Barr, Lady M. Boscawen, Dorothy Pearson, Longfellow, Armored and Cornelia. 2nd, Mr. JOHN POPE, King's Norton, whose flowers of Bernardino, Sulphur Prince, Alanzo, Lucifer, Albatros, White Lady, Victory, Gloria Mundi, Mariana, Homer and Scilla were very meritorious. 3rd, Mr. F. H. CHAPMAN, Rye, Sussex. Messrs. CARTWRIGHT & GOODWIN won 1st prizes in each of the following five classes:—(1) twelve distinct varieties of long-trumpet Daffodils; (2) six distinct varieties of short-trumpet Daffodils; (3) twelve distinct varieties of short-cupped Daffodils; (4) six distinct varieties of flat-cupped Daffodils; and (5) six vases of double Daffodils. The flowers exhibited by Messrs. CARTWRIGHT & GOODWIN were unusually good and pleasingly arranged.

The Rev. JOSEPH JACOB, Whitewell Rectory, Whitchurch, beat four contestants in a class provided for 12 distinct varieties of large-cupped Daffodils. The best varieties were Pilgrim, Charles, Lucifer, Whitewell, Elegance, Eoster, Albatros and Diana. 2nd, Mr. H. D. PHILLIPS, Olton, with a choice set of flowers, in which Homespun, Lucifer and Leonie were well shown.

The premier prize in a class for six varieties of the true Poeticus type was won by Mr. F. H. CHAPMAN, Rye, with superb flowers of White Elephant, Tennyson, Kestral, Horace, Soneta, and Kingsley. 2nd, Messrs. CARTWRIGHT & GOODWIN. 3rd, Mr. CHRISTOPHER BOURNE, Bletchley.

The best half-dozen varieties of bunch-flowered varieties of Daffodils came from the Rev. JOSEPH JACOB, who showed excellent examples of Klondyke, Ideal, Irene, Elvira, Orient and Jaune A. Merville. 2nd, Messrs. CARTWRIGHT & GOODWIN, whose flowers were rather past their best condition.

In a special class, the object of which was to bring out the best decorative effect of popular and moderate-priced varieties such as Emperor, Empress, Golden Spur, Victoria, Sir Watkin, J. B. M. Camm, Frank Miles, Poeticus ornatus, &c., there were 11 creditable exhibits: 1st, Mr. JOHN POPE, King's Norton; 2nd, Mr. W. MARPLE, Penkridge; 3rd, Messrs. F. IMPEY & SON, Northfield.

AMATEUR CLASSES.

The premier class in this section was for 25 distinct varieties of Daffodils (bulbs not to cost more than 10s. 6d. each). The seven entries made a fine display, and Mr. E. H. WOOD, Ludlow, who secured the 1st prize, showed remarkably good specimens of Hamlet, Barrii conspicuus, Mme. de Graaff, White Lady, Katherine Spurrell, Lucifer, Gloria Mundi, Seagull and Glory of Leiden; 2nd, Mr. N. Y. LOWER, Presteigne, who showed Gloria Mundi, Mme. de Graaff, Horace and White Lady in excellent condition. The last-named exhibitor was awarded 1st prizes for (1) nine distinct varieties of long-trumpet Daffodils; (2) three distinct varieties of short-trumpet Daffodils; (3) nine distinct varieties of large-cupped Daffodils; and (4) nine distinct varieties of small-cupped Daffodils. Mr. H. R. DARLINGTON, Potter's Bar, was awarded 2nd prizes in the first three classes, and the Rev. T. BUNCOMBE, Black Torrington, 2nd in the last class.

Mr. H. R. DARLINGTON beat five contestants in a class for three Poeticus varieties. He had exquisitely-shaped flowers of Horace, Virgil and Dante; 2nd, Mr. N. Y. LOWER.

The Rev. G. P. HAYDON, Canterbury, had the best three varieties of flat-cupped Daffodils in Sequin, Barn Owl and Thistle; 2nd, Rev. T. BUNCOMBE.

From J. A. KENRICK, Esq., Berrow Court, Edgbaston (gr. Mr. A. Cryer), came the best three varieties of double Daffodils, and Mr. H. R. DARLINGTON showed the best three varieties of bunch-flowered Polyanthus or Poetaz Daffodils.

MAIDEN GROWERS.

The following five classes were reserved for amateurs who had never won more than three 1st prizes at any of the society's exhibitions. No bulb to cost more than 1s. The most important class was for 12 distinct varieties of Daffodils, and the 1st prize was won by Mr. H. H. JONES, Ludlow, who showed a handsome set of flowers. The best varieties were Duchess of Westminster, Mme. Plomp, Glory of Leiden, and Mme. de Graaff; 2nd, Mr. W. MARPLE, Penkridge. Mr. A. TAYLOR, Acock's Green, exhibited the best half-dozen varieties of long-trumpet Daffodils. He had splendid flowers of Mrs. Berkley, Mme. de Graaff, Glory of Leiden, Empress, Grandee and Emperor; 2nd, Mr. H. H. JONES. In a class provided for six varieties of large-cupped Daffodils, Mr. B. BROWN, Ludlow, beat seven contestants. The Rt. Hon. Lady LILFORD, Oundle, won 1st prizes in classes for (1) six distinct varieties of small-cupped Daffodils, and (2) three distinct varieties of the Poeticus type.

SINGLE BLOOMS.

Eight classes, representative of the various sections of Daffodils, were provided for single blooms, and 76 entries were made, being an average of 9.4 per class. The principal prize winners were Messrs. CARTWRIGHT & GOODWIN. A. M. WILSON, J. MALLENDER, H. D. PHILLIPS and E. M. CROSFIELD.

THE BOURNE CHALLENGE CUP.

This was offered for 12 distinct varieties of Daffodils raised by the exhibitor. The cup and Gold Medal that accompanied it was again won by Mr. E. M. CROSFIELD, Bridgwater, whose flowers were of good size, perfect form and substance, being beautifully arranged. The flowers exhibited were Surface, Red Rover, Climax, Honeymaid, Challenger, Elf and Anchorite. The remaining five varieties were unnamed; 2nd, Mr. F. H. CHAPMAN; 3rd, Mr. JOHN POPE.

In a class for six varieties of seedling Daffodils, raised by the exhibitor, but not yet in commerce, there were six exhibits. 1st, Mr. P. D. WILLIAMS, St. Keverne, with superb flowers of Lysander, Svvia, Yolande, Evander, Norseman and Byron; 2nd, Mr. A. M. WILSON, Bridgwater, with beautifully fresh flowers of Geheimmnis, Lapwing, Beresker, Dagmar, Jason and Alaric. The last-named exhibitor was awarded the 1st prize in a class for three varieties of seedling Daffodils that are not yet in commerce. He showed exquisite flowers of Levula, Genevieve and Maud Muller.

THE CARTWRIGHT CHALLENGE CUP.

This handsome cup, together with a piece of plate, was offered for 12 varieties of Daffodils which have not been in commerce for a longer

period than four years. Mr. E. M. CROSFIELD again led, this being the third successive year he has carried off this trophy. He showed exquisite flowers of Jealousy, Iliad, Wraith, Winsome, Tinsel, Challenge, Tablet, Firetail, Anchorite, Morena, Honeymaid, and Chintz. 2nd, Messrs. CARTWRIGHT & GOODWIN, with a very handsome collection. The best varieties were Giraffe, White Star, Hildegard, and Ailsa. 3rd, Rev. G. P. HAYDON.

In the next class, which was for six varieties of Daffodils that have not been in commerce more than four years, the Rev. JOSEPH JACOB took the lead with shapely flowers of Leonard, Dr. Phillips, Whitewell, Mrs. Hugh Lee, Redbrook, and Mrs. W. O. Wolseley. 2nd, Mr. JOHN POPE.

THE HERBERT CHAPMAN POETICUS TROPHY.

This was offered for six distinct Poeticus varieties that have not been in commerce more than four years, and to include at least one variety not yet in commerce. 1st, Mr. A. M. WILSON, whose flowers of Eurydice, Chicot, Jack Point, Druid, Walo, and Sarchedon were very meritorious. 2nd, Messrs. CARTWRIGHT & GOODWIN, whose vase of Oliver Goldsmith was of outstanding merit.

The Walter Ware Challenge Cup was offered for a group of not fewer than 12 nor more than 24 distinct Triandrus hybrids. There were six entries in this interesting class. 1st, Mr. E. M. CROSFIELD, Bridgwater, with dainty flowers beautifully fresh and well-coloured. With one exception, all the varieties were unnamed. 2nd, Messrs. CARTWRIGHT & GOODWIN, Kidderminster.

MISCELLANEOUS CUT FLOWERS.

The best half-dozen vases of Darwin Tulips came from J. A. KENRICK, Esq., Harborne (gr. Mr. R. Usher). The blooms were large, shapely, and borne on long stems. 2nd, J. A. KENRICK, Esq., Edgbaston (gr. Mr. A. Cryer). The same exhibitors secured 1st and 2nd prizes respectively in a class for six distinct varieties of Spanish Irises.

PLANTS GROWN IN POTS OR VASES.

Eight classes were provided for these, and competition was fairly keen in most of them. For six pots of Daffodils, Mr. W. H. PARTON, Hollywood, beat five contestants, with some exceptionally well-flowered specimens; 2nd, Mr. J. A. KENRICK (gr. Mr. A. Cryer).

In a class for six pots of Tulips, Mr. J. A. KENRICK (gr. Mr. R. Usher) easily beat Mr. A. CRYER. The last-named exhibitor took the lead in a class for six pots of spring-flowering bulbs (Daffodils and Tulips excluded).

Mr. A. CRYER was again to the fore in the classes provided for (1) three vases or bowls of any bunch-flowered Poetaz Daffodils grown in moss-fibre, and (2) three vases of Lily of the Valley grown in moss-fibre.

The 1st prize for three bowls of Daffodils was awarded to Mr. W. H. PARTON for unusually fine examples.

Mr. S. MORTIMER showed the best three plants of Polyanthus.

MEDALS.

Medals offered by the Birmingham Botanical and Horticultural Society were awarded as follows:—

Silver Medal: Messrs. CARTWRIGHT & GOODWIN, Kidderminster; Mr. N. Y. LOWER, Presteigne; J. A. KENRICK, Esq., Edgbaston (gr. Mr. A. Cryer).

Bronze Medal: The Rev. JOSEPH JACOB, Whitchurch; Mr. H. R. DARLINGTON, Potter's Bar; J. A. KENRICK, Esq., Harborne (gr. Mr. R. Usher).

Messrs. Barr & Sons' Daffodil Vase was won by Mr. N. Y. LOWER, Presteigne.

THE DAFFODIL SOCIETY'S MEDALS.

Gold Medals: Miss CURREY, Lismore Ireland, for Daffodils; Messrs. BAKERS, Wolverhampton, for Alpine plants.

Silver-gilt Medals: Messrs. BARR & SONS, London, for Daffodils; Rev. G. H. ENGLEHEART, Andover, for Daffodils; Mr. A. M. WILSON, Bridgwater, for Daffodils; Messrs. SUTTON & SONS, Reading, for Cinerarias; Messrs. FELTON & SONS, London, for new Gerberas and Roses.

Large Silver Medals: Messrs. J. R. PEARSON & SONS, Lowdham, for Daffodils; ROBERT

SYDENHAM, LTD., Birmingham, for Daffodils; Mr. W. A. WATTS, St. Asaph, for Daffodils; Messrs. HOGG & ROBERTSON, Dublin, for Daffodils; Mr. W. T. WARE, Bath, for Poets Daffodils; Messrs. WALLACE & CO., Colchester, for Alpine plants and Daffodils; Mr. S. MORTIMER, Farnham, for Polyanthus.

Silver Medals: Sir JOSSLYN GORE-BOOTH, for Daffodils; Mrs. BACKHOUSE, Hereford, for Daffodils; Messrs. W. H. SIMPSON & SONS, Birmingham, for Daffodils; Messrs. DICKSONS, LTD., Chester, for Daffodils; Messrs. R. H. BATH, Wisbech, for Daffodils; Mr. H. ELLISON, West Bromwich, for Ferns; Mr. VINCENT SLADE, Taunton, for Zonal Pelargoniums; Messrs. HEWITT & CO., Solihull, for Roses and Gerberas.

Vote of Thanks: Mrs. LLOYD EDWARDS, Llangollen, for Mossy Saxifragas.

AWARDS TO NOVELTIES.

Awards of Merit to *Narcissus poeticus* Kingsley, from Mr. F. H. CHAPMAN, Rye; N. p. Snow King, from Messrs. BARR & SONS; N. White Star, from Messrs. CARTWRIGHT & GOODWIN; N. Challenger, from Mr. E. M. CROSFIELD; N. Firetail, from Mr. E. M. CROSFIELD; N. Anchorite, from Mr. E. M. CROSFIELD; and to *Saxifraga hybrida pulchella grandiflora*, from Mrs. LLOYD EDWARDS.

FALMOUTH SPRING FLOWER SHOW.

APRIL 21, 22.—The first spring flower show at Falmouth took place on these dates. The exhibition was opened by Princess Christian, in beautifully fine weather. In some of the classes the entries were not large, being restricted, in some cases, to one exhibit. This was on account of the Daffodil season in the south-west being almost over. The trade exhibits were remarkably fine. Messrs. GILL & SON, Falmouth, won the piece of Silver Plate offered for the best nurserymen's exhibit, with a collection of Rhododendrons, Carnations, Azaleas, and rare shrubs. Messrs. STUART LOW & CO., Enfield, showed Orchids and Carnations, which specially attracted the attention of Princess Christian, and Messrs. R. VEITCH & SON had also a fine exhibit. The arrangements of the show were admirable, and under the supervision of Mr. E. Gill, the hon. secretary.

The Barker Challenge Bowl, offered for the best exhibit in the show, to be won three times in succession, the winner on each occasion to receive a gold medal, was won by Captain TREMAYNE. This gentleman also won a Silver Cup offered for the most meritorious exhibit in the Rhododendron class. Mr. C. H. HEXT received a Gold Medal for the best exhibit of hard-wood flowering shrubs and creepers. A Silver Cup was awarded to Mr. W. JOB for the best exhibit in the amateur classes. Mr. R. FOX received a Silver Medal for a group of spring flowers, and Miss TAYLOR received an Award of Merit for a table decoration. Gold Medals were awarded to the following nurserymen:—Messrs. R. VEITCH & SON, Exeter; Messrs. BARR & SON, London; Messrs. STUART LOW & CO., Enfield; Messrs. BUNYARD & CO., Maidstone; and Silver Medals to THE ALPINE NURSERY CO., St. Germans; and Messrs. RUSE & SON, Falmouth.

NATIONAL VEGETABLE.

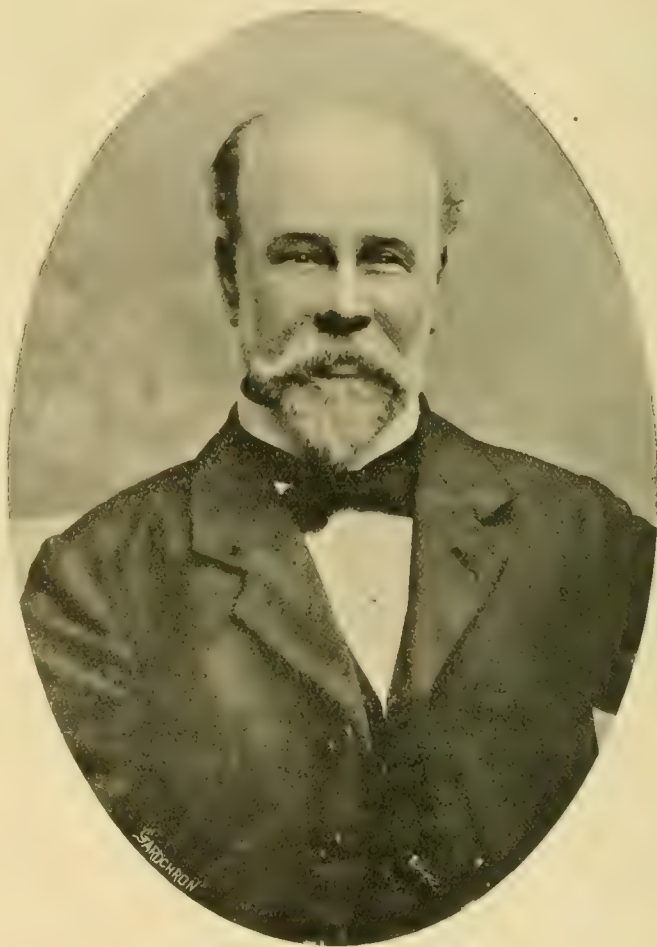
MAY 3.—At a meeting of the Committee held on this date, the reports of the two deputations appointed to examine the early Spring Cabbage trials, conducted respectively at Twickenham and Sutton Green, Surrey, were considered and agreed to. Each of the 39 stocks as named were carefully noted, the varieties being ultimately placed in various grades. The Committee's full report will be issued shortly.

BRITISH GARDENERS' ASSOCIATION. (LONDON BRANCH.)

THE annual meeting will take place at Carr's Restaurant on Thursday, 12th May, at 8 p.m. Mr. E. F. HAVES, chairman of the branch, will preside. After the election of officers for the year and the transaction of other business, a discussion on the policy of the B.G.A. will be opened by Mr. Feltham, of Kew Gardens.

Obituary.

H. J. CHALWIN.—We regret to announce the death of Mr. H. J. Chalwin, which took place at Langside, Glasgow, on April 27. Since 1831 Mr. Chalwin was Superintendent of the Botanical Gardens, Cape Town, which, in 1891, was handed over by the Government to the municipal authorities as a public garden. Mr. Chalwin still remaining in authority. The late superintendent made many improvements tending to give wider interest to the gardens, and he formed one of the best collections of Orchids in South Africa. Until the last few years Mr. Chalwin enjoyed good health, but latterly he was occasionally indisposed, and in the summer of last year he retired from his duties, being granted a pension. His retirement was made the occasion by the municipality of a public presentation, including an illuminated address. His return was the reverse of beneficial, and after a painful illness death resulted from Bright's disease.



THE LATE R. WILSON KER, V.M.H.

RICHARD BIDE.—We regret to record the death of Mr. Richard Bide, on Friday, April 29, at the age of 78. Mr. Bide was manager of the glass department at Messrs. S. Bide and Sons Nursery, Farnham, for more than 40 years. He started his gardening career as a boy at Farnham Castle, afterwards being engaged as Orchid grower to the Duke of Wellington, and later he was employed by General Scott at Thorpe, near Chertsey.

R. WILSON KER, V.M.H.—One of the foremost nurserymen in this country passed away on the 11th, by the death of Mr. R. Wilson Ker, senior partner in the firm of Messrs. Ker & Sons, Aigburth Nurseries, Liverpool. It was only as recently as June of last year that the Royal Horticultural Society conferred upon him the highest distinction in horticulture—the Victoria Medal of Honour. Readers will share our regret that he has lived such a short time to enjoy the distinction. He was born in 1839, and served his apprenticeship under Mr. Wm. Skirving, and later he was employed at the Pine-

apple nursery of Messrs. Henderson, at Maida Vale, London. He left Maida Vale in 1860 to assist in the Aigburth business. On the death of his father, Mr. Ker, in conjunction with his brother, Mr. W. Ker, took over the management of the nursery, which had become famous for the high quality of the plants sent out from it, a reputation it still retains. Stove plants, and especially Codiaeums (Crotons), were made a speciality, and the Aigburth plants were celebrated throughout the country. Of recent years the firm has devoted much attention to the improving of the *Hippeastrum*, and displays of these plants from Liverpool at the Temple Show, Ghent and other important exhibitions have always gained the highest awards. The late Mr. Ker enjoyed great popularity, and no one in the horticultural business was held in higher esteem, for his personal manner as his business integrity. Mr. Ker was one of the first to make an annual visit to Holland, which he did for more than 40 years, at the bulb season, and no one knew more of the rise and progress of

the bulb-growing industry in that country. Outside his business he was specially interested in educational work, and he was for many years a member of the board of the Liverpool Institute, one of the largest public schools in the city, where he himself was educated, and subsequently all of his eight sons. Two of Mr. Ker's sons are connected with the firm.

MAJOR ENTHOVEN.—We regret to announce the death of Major Enthoven, late Royal Engineers, who had held, since February last, the post of Chief Officer of the London Parks under the County Council. Major Enthoven died of pneumonia, on April 30, at the early age of 44. At the meeting of the London County Council on Tuesday last (May 3), the chairman, Mr. Whitaker Thompson, referred in sympathetic terms to the death of Major Enthoven, and stated that all the members of the Council had been impressed with the zeal which Major Enthoven had attacked the work, which was, to some extent, novel to him.

MARKETS.

COVENT GARDEN, May 4.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemones, p. doz.	1 0-1 6	Marguerites, p. doz.	3 0-4 0
Azalea, Ghent, per bunch	0 6-0 9	Mignonette, per dozen	4 0-6 0
— Fielden, per dozen	2 0-3 0	Narcissus poeticus (Pheasant's Eye), per doz. bunches	1 0-2 0
Bouvardia ...	4 0-6 0	Odontoglossum crispum, per dozen bunches	1 0-2 0
Calla (see Richardia)		Pelargoniums, show., per doz. bunches	4 0-6 0
Carnations, p. doz. blooms, best	2 0-3 0	— Zonal, double	4 0-6 0
American (var.)	2 0-3 0	— scarlet...	4 0-6 0
Carola, and other special varieties	4 0-5 0	Richardia africana (Calla), p. doz.	1 6-2 6
— second size	1 6-2 0	Roses, 12 blooms,	
— smaller, per doz. bunches	12 0-18 0	Niphetos ...	1 0-2 0
Camellias, per doz.	1 6-2 0	— Bridesmaid ...	1 6-2 6
Cattleyas, per doz. blooms	6 0-9 0	— C. Testout ...	2 0-3 0
Daffodils, best, per doz. bunches	1 6-3 6	— Kaiserin A. Victoria ...	1 0-3 0
— seconds	1 0-2 0	— Capt. Hayward ...	1 0-2 0
— double, per doz. bunches	1 0-1 6	— C. Mermet ...	1 6-2 0
Eucharis grandiflora, per dozen blooms	3 0-4 0	— Liberty ...	1 6-2 6
Freemias, p. doz. bch.	1 0-1 6	— Mme. Chatenay ...	1 6-4 0
Gardenias, per doz.	1 6-2 6	— Richmond ...	2 0-4 0
Gypsophila elegans, p. doz. bunches	3 0-4 0	— The Bride ...	1 6-2 6
Heather (white), per bunch	1 0 —	Spiraea, per doz. bunches	4 0-6 0
Iris (Spanish), per doz. bunches	5 0-8 0	Stephanotis, 72 "pips"	3 0-4 0
Lilac (French), per bunch	2 0-3 0	Stocks, per doz. bunches	3 0-4 0
Lilium auratum, per bunch	2 0-3 0	Sweet Peas, per dozen bunches	8 0-6 0
— longiflorum ...	2 0-3 0	Tuberose, p. gross, per doz. blooms	0 4-0 6
— lancifolium rubrum ...	1 6-2 0	Tulips, singles, per doz. bunches	6 0-9 0
— lancifolium album ...	1 6-2 0	— doubles, per doz. bunches	10 0-15 0
Lily of the Valley, p. doz. bunches	6 0-9 0	Violets, per doz. bunches	1 6-2 0
— extra quality ...	12 0 15 0	— Parma ...	1 6-2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches	6 0-8 0	Ferns (French), per doz. bunches	0 6-0 9
Asparagus plumosus, long trails, per doz.	12 0-18 0	Galax leaves, per doz. bunches	1 6-2 0
— medium, doz. bunches	12 0-18 0	Hardy foliage (various), per dozen bunches	3 0-9 0
— Sprenger ...	9 0-12 0	Ivy-leaves, bronze, long trails per bundle	0 9-1 6
Berberis, per dozen bunches	2 6-3 0	— short green, per doz. bunches	1 0-2 0
Croton leaves, per dozen bunches	9 0-12 0	Moss, per gross ...	4 0-5 0
Cycas leaves, each	1 0 2 0	Myrtle, dz. bchs. (English), small-leaved	4 0-6 0
Ficus, per dozen bunches (English)	2 0-3 0	— French ...	1 0-1 6
		Smilax, p. dz. trails	4 0-6 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacia Drummondii, per dozen	24 0-30 0	Cyclamen, per doz.	8 0 12 0
Ampelopsis Veitchii, per dozen	6 0-8 0	Cyperus alternifolius, dozen	4 0-5 0
Aralia Sieboldi, p. dozen	5 0-8 0	— laxus, per doz.	4 0-5 0
— larger specimens	9 0-12 0	Daffodils, per doz.	4 0-6 0
— Moseri ...	6 0-8 0	Dracenas, per doz.	9 0-24 0
— larger plants	12 0-18 0	Erica candidissima	18 0-24 0
Araucaria excelsa, per dozen	12 0-30 0	— Cavendish, per dozen	24 0-36 0
— large plants, each	3 6-5 0	— persoluta alba	24 0-30 0
Aspidistras, p. dz., green	15 0-24 0	— small plants (various)	3 0-5 0
— variegated	30 0-42 0	Euonymus, per dz., in pots	3 0-8 0
Asparagus plumosus natus, per dozen	9 0-15 0	— from the ground	3 0-6 0
— Sprenger ...	9 0-12 0	Ficus, in thin bds., per 100	8 0-12 0
— tenuissimus	9 0-12 0	— in small and large 60's	12 0-20 0
Azaleas, per doz.	30 0-42 0	— in 48's, per dz.	4 0-6 0
Begonia Gloire de Lorraine, per dozen	12 0-18 0	— choicer sorts	8 0-12 0
Boronia heterophylla, per dz.	24 0-30 0	— in 32's, per dz.	10 0-18 0
— megastigma ...	18 0-24 0	Ficus elastica, per dozen	9 0-12 0
Calceolarias (herbaceous), p. dz.	6 0-8 0	— repens, per dz.	6 0-8 0
Cinerarias, per doz.	5 0-8 0	Genistas, per dz.	5 0-8 0
Clematis, per doz.	8 0-9 0	Grevilleas, per dz.	4 0-6 0
— in flower	18 0-24 0	Hyacinths, per dz. pots, 3 in a pot	6 0-9 0
Cocos Weddelliana, per dozen	18 0-30 0	Hydrangeas Hortensis, per doz.	9 0-18 0
Crotons, per dozen	18 0-30 0	— Thos. Hogg ...	12 0-24 0
		Isolepis, per dozen	4 0-6 0
		Kentia Belmoreana, per dozen	18 0-24 0
		— Fosteriana, per dozen	18 0-30 0

Plants in Pots, &c.: Average Wholesale Prices (Contd.).

	s.d. s.d.		s.d. s.d.
Latania borbonica, per dozen	15 0-21 0	Pelargoniums (show), per doz.	12 0-18 0
Lilium longiflorum, per dz.	24 0-36 0	— Ivy-leaved, doz.	6 0-8 0
— lancifolium, p. dozen	18 0 30 0	— zonal ...	6 0-8 0
Lily of the Valley, per dozen	18 0-30 0	Selaginella, p. doz.	4 0-6 0
Marguerites, white, per dozen	6 0-9 0	Spiraea japonica, dz.	8 0-10 0
Mignonette, p. doz.	6 0-8 0	Stocks (intermediate), per dz.	6 0-8 0
		Tulips in boxes of 24 bulbs	1 6-2 0
		— pots, special	9 0-12 0
		Verbena, per doz.	6 0-10 0

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples (U.S.), per barrel	24 0-27 0	Lemons, per case:	
— Albemarle Pippin	32 6 —	— (Messina, selected, 300)	9 6 —
— (Canadian), per barrel:		— selected, large	9 6 —
— Spy ...	22 6 —	— medium, 360	7 6 —
— (Nova Scotian), per barrel:		— special cases, 330	8 0 —
— Nonpareil	12 6-16 0	— boxes, extra quality, 300	5 0 —
— Baldwin	18 0 22 0	Lychies, per box	1 6-1 9
— Ben Davies	14 0-17 0	Mangoes (Cape), per doz.	4 0 10 0
— (African), per case:		Nuts, Almonds, p. bag	36 0-42 0
— Newtown Pippin, 4 tiers, selected	9 0 —	— Brazil, new, per cwt.	45 0 —
— 4 tiers, do.	8 0 —	— sorted	50 0 —
— 4 tiers, seconds	6 0-7 0	— Barcelona, bag	32 0-34 0
— 4 tiers, do.	6 0-7 6	— Cocoa nuts, 100	10 0-14 0
— (Oregon), Newtown Pippin, per case:		— (Italian), p. bag	11 0-13 0
— 4 tiers	14 0-15 0	Oranges—	
— 4 tiers, do.	10 0 —	— Palermo Blood (80)	6 0 —
— (Austrian)	12 0-18 0	— (100)	6 0 —
— per case:		— Californian Navel, box (80)	10 0-11 0
— Cleopatra, selected large	10 0-13 6	— " " (112)	10 0-11 0
— Cox's	14 0 20 0	— " " (126)	10 0-11 0
— Jonathan	11 0-14 0	Jaffas, case (144)	9 0-10 0
— Monroe's Favourite	11 0-14 0	— (200), per case	14 0 —
— Wellington	10 0-14 0	— Selected	16 6 —
— (Tasmanian), per case:		— (420) large	20 0-25 0
— Ribston	8 6-9 0	— (714) selected	18 6 —
— New York	10 0-11 0	— Valencia, per case (420)	18 6 22 6
— Alfriston, cooking	8 6-9 0	— Messina Bitters, box (200)	10 0 —
— Mobb's Codling	7 6-8 6	— Mandarinine, Florida, p. case	10 0-12 0
— Alexander	7 6-8 6	— " per box	14 1-6
— Scarlet Pearmain	9 0-9 6	— Jamaica, p. case	9 6 10 6
— Crews Egg	7 9 —	— Tangerine, box	0 6-0 9
Bananas, bunch.		— Seville Sour, per 1/2 chest	15 0-16 0
— Doubles	12 0 —	English Peaches, per doz.	12 0-18 0
— No. 1	8 0-10 0	Pears (Avacado), per doz.	6 0-12 0
— Extra	9 0-11 0	Pears (Cape)	
— Giant	11 0-14 0	— Winter Nelis	6 6 —
— Red coloured	4 6-6 0	— per 25	5 6 —
— Red Doubles	8 0-9 0	— Beurré Bosc (24, 28)	6 0-6 6
— Loose, per dz.	0 6-1 0	— Beurré Clairgeau	6 0 —
Cranberries (American Cape Cod), per case	7 0 —	— (Austrian), per tray	4 0-6 0
Custard Apples, p. dozen	6 0-12 0	— (Tasmanian), per case:	
Dates (Star), cwt.	9 6 —	— Beurré Bosc	6 0-8 0
Grape Fruit, case:		— Beurre Clairgeau	6 0-8 0
— 96's	14 0-18 0	— Beurre Capri amount	
— 80's	14 0-18 0	— Vicar of Wakefield, large cases	8 6 —
— 64's	14 0-18 0	Pineapples, each	2 6-4 0
— 54's	14 0-18 0	Strawberries, p. lb.	2 6-3 0
Grapes, per lb.:		— seconds	1 0-1 6
— (America), per barrel	20 0-25 0		
— p. 12 lb. baskets	3 0 —		
— (Cape), p. box:			
— Raison Blanc, 10 lbs. to 12 lbs.	6 0-7 0		
— 10 lbs. to 24 lbs.	12 0-14 0		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	2 0-2 6	Carrots (French), dozen bunches	4 0-6 0
— Jersey em, 1/2 sieve	0 9-1 0	Cauliflowers, hamper (per 24-30)	3 0-4 0
Asparagus, English, per bdie, 100 sticks	2 6-3 0	— (French), per crate (24-30)	4 0 5 0
— Paris Green, bundle	2 6-3 0	Chicory, per lb.	0 5 —
— Sprue	0 6-0 7	Cucumbers, p. flat	
— (Dijon)	1 0 1 2	— 30's	5 0 7 6
— Lauris	2 8-2 9	— 36's	6 0 7 6
— (Spanish)	0 10-1 0	Endive, per dozen	1 6-2 0
— (Barcelona)	0 8-0 9	Greens, Spring, bag	1 0-2 0
— Giant	5 0-10 0	Horseradish, foreign, new, per bundle	1 0 1 6
— Montauban	2 9-3 0	— 12 bundles	12 0-18 0
— Tontuse	2 2-2 6	Leeks, 12 bundles	1 0-1 6
Beans (English and Chan. Islands), per lb.	1 0-1 2	Lettuce (French), per crate (27-30)	1 0-1 2
— Broad (French), per pad	3 6-4 6	Marrows, per doz.	4 6 6 0
Beetroot, per bushel	1 0-1 6	Mint, doz. bunches	3 0-6 0
Cabbages (spring), per hamper	2 6-3 6	Mushrooms, per lb. broilers	0 10-1 0
Carrots (English), dozen bunches	2 9-3 0	Mustard and Cress, per dozen pun	1 0 —
— per bag	3 6-4 0	Onions (Valencia), per case	12 6 —
— unwashed	1 6-1 9	— Egyptian, bags	6 0 —

Vegetables: Average Wholesale Prices (continued).

	s.d. s.d.		s.d. s.d.
Parsley, 1/2 sieve	1 6-2 0	Sprouting Broccoli, bag	1 0-1 6
Peas (French), pad	6 0-8 0	Stachys tuberosa, per lb.	0 4-0 5
— (Jersey) per lb.	0 8-1 0	Tomatoes—	
Potatoes (Algerian), cwt.	14 0 —	— (English), per dozen lbs.	11 0-12 0
— (Channel Islands), per lb.	0 8 1/2 0 4 1/2	— (Guernsey), per dozen lbs.	9 0-10 0
— (Teneriffe), per cwt.	10 0 —	— (Lancette), per bundle	12 0 17 0
Rhubarb (forced), doz. bundles	0 10-1 0	Turnips, 12 bunches	2 0 3 0
— Natural, per dozen bundles	2 0-3 0	— bags	2 6-3 0
Radishes (Guernsey), per dozen	0 8-0 9	— dirty, per bag	2 0 —
Savoy, per tally	4 6-6 0	— (French), per dozen bunches	7 0-8 0
Seahale	1 0-1 2	Turnip Tops, bag	2 0 2 0
Spinach, 1/2 sieve	2 0-2 6	Watercress, p. flat	6 0-6 6
— (French), crate	2 0-2 6		

REMARKS.—There is an increased supply of Asparagus of all varieties; giant Asparagus of best quality, however, maintains good prices. There are small consignments of English Asparagus from Worcester, 100 sticks per bundle, arriving daily. English Tomatoes are meeting a small demand, owing principally to the good quality of foreign-grown Tomatoes. There is a large stock of French-grown salads of all varieties. Apples generally are cheaper, owing to larger arrivals. Strawberries are a little firmer in prices, but 3s. per lb. is their highest market value; the demand for this fruit has not been good, owing to the cold weather. Trade generally, both in the fruit and vegetable markets, is fair. E. H. Riles, Covent Garden, May 4, 1910.

Potatoes.

	per cwt.		per cwt.
Bedfords—		Lincolns—	
Up-to-Date	3 0 3 6	Up-to-Date	3 0 3 9
Blacklands	2 0-2 9	Dalmen Beauty	3 6-3 9
Dunbars	5 0-5 3	Royal Kidney	2 3-2 6
Maincrop	4 0 4 6	Maincrop	2 9-3 6
Up-to-Date	2 3-2 6	King Edwards	3 0 3 6
Lincolns—		Kents—	
Evergood	2 3-2 6	Scottish Triumphs	3 6-3 9
Sharpe's Express	2 3-2 6	Up-to-Date	3 6-3 9

REMARKS.—Trade is slow, and prices are about the same as last week. Consignments are quite equal to the demand. New potatoes from Jersey will be more plentiful next week. Edward J. Newborn, Covent Garden and St. Pancras, May 4, 1910.

COVENT GARDEN FLOWER MARKET.

CUT FLOWERS.

Supplies of most seasonal flowers are excessive. Roses are now of the best quality, but their prices are low. Splendid blooms of Mr. J. Laing have been selling at 1s. to 1s. 6d. per dozen, and blooms of La France (with the exception of the very finest flowers) have not been worth more. Blooms of Capt. Hayward are also offered cheaply. Frau Karl Druschki is a little more valuable; also Madame Abel Chatenay. Carnations vary in value, but few sell for more than 2s. 6d. per dozen flowers. Most growers cultivate Britannia as a scarlet variety. Two-year-old plants are the most satisfactory for blooming. The variety, Mrs. S. Hill, has improved, but White Perfection is still the greatest favourite with most growers. Rose Pink Enchantment is coming to the front as a market sort, and Windsor is also worthy the attention of market growers. It is difficult to say which is the best crimson Carnation; Carola is the largest flowered and President is one of the brightest. Lilliums have been making rather better prices, especially at the end of the week, but with a few warm days they will probably be more plentiful again. Richardias (Callas) are abundant and cheap. Lily of the Valley varies but little; Daffodils are over abundant. Blooms of Narcissus ornatus were offered this morning at 2s. 6d. per box of five dozen bunches, but this must not be regarded as their ordinary value early in the morning. Sweet Peas are arriving from several growers; they are of better quality than those seen earlier in the season. Tulips continue to be plentiful; some fine Darwin and Parrot varieties are seen. French flowers have not been quite so plentiful, but large supplies are arriving from the Channel Islands.

POT PLANTS.

Supplies are more than equal to all demands. Azaleas are still very good, though some are rather far advanced in bloom. Ericas are good, and include E. Cavendishii, E. ventricosa, E. persoluta alba, and E. hybrida. Pelargoniums include Show, Ivy-leaved and Zonal varieties, all of which are good. Petunias, both single and double varieties, are well flowered, but they are chiefly in 60 pots. Heliotropes in 48 pots are good. Mignonette is remarkably fine, also Intermediate Stocks. Genistas are well flowered. Some good pot Lilliums are seen. Plants of Verbena Miss Willmott are also well flowered. Cinerarias are plentiful, and of very good quality. Bulbs of various sorts continue to be plentiful. Hydrangeas are good, especially the variety Thos. Hogg. Foliage plants are well supplied, and include all the usual sorts used for decorations. There are also shrubs, climbers and other hardy subjects. Pansies, Primroses, Violas and other hardy plant roots are abundant. A. H., Covent Garden, May 4, 1910.

GARDENING APPOINTMENTS.

Mr. JAMES HUMPHREY, for the past 3 years Gardener to Sir FRANCIS BURDETT, Foremark Hall, Burton-on-Trent, as Gardener to Mrs. FINCH, The Gables, Linslade, Leighton Buzzard.

Mr. A. A. LITTLE, for 24 years Gardener to J. W. SIDLEY, Esq., Rotherhurst, Rotherfield, Sussex, as Gardener to W. ARTHUR RIX, Esq., Seaford Park, Fareham, Hants.

Mr. P. HUNT for 4 years Gardener and Manager at Hatton Park, Middlesex, as Gardener to Lady WATSON, Earnock House, Hamilton, Lanarkshire, N.B.

Mr. J. KEMP, for the past 6 years Foreman in the gardens of the late J. B. COATES, Esq., Fern Hill, Norwich, as Gardener to H. W. SANDERSON, Esq., at the same address.

LAW NOTE.

ABSCONDING DEBTOR.

At the officers of the Official Receiver for the St. Albans district, Bedford Row, W.C., before Mr. Cecil Mercer, Official Receiver, the first meeting of creditors was held under the failure of Francis George Young, nurseryman and Orchid grower, Watson's Walk, St. Albans. After dealing with the proofs of debt lodged, the Official Receiver said debtor had not surrendered under the proceedings, and he had no idea of his whereabouts. Debtor took over the business on the death of his father in 1900, and it was then a good business. An interim receiving order was granted by the Court, because it was a case of urgency, the debtor having disappeared, and there was nobody in a position to look after the estate. The Official Receiver said he had received proofs of debts amounting to £6,600, but the total claims, so far as he could see at present, would amount to £10,000. A resolution was unanimously passed that Mr. Stephen Pagden Childe, chartered accountant, of 8, Fredericks Place, Old Jewry, E.C., should be appointed trustee of the estate, to act under the supervision of a committee of inspection.

THE WEATHER.

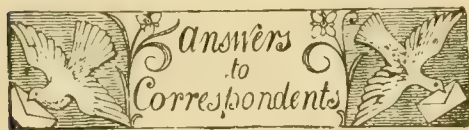
THE WEATHER IN WEST HERTS.

Week ending May 4.

The wettest week for over two months.—There were two moderately warm days, and two warm nights, but during the rest of the week both the days and nights were below the average in temperature, and on one night the exposed thermometer showed 8° degrees of frost. The ground is at the present time 2° colder at 2 feet deep, and 3° degrees colder at 1 foot deep, than is seasonable. Rain fell on five days, and to the total depth of nearly an inch. The rather heavy rain on the 2nd restarted both the soil gauges, through which there had been no percolation for nearly a month. The sun shone on an average for 5½ hours a day, which is a quarter of an hour a day short of the average duration a this period of the Spring. The wind was at times rather high, but in the windiest hour the mean velocity only amounted to 15 miles—direction S.S.W. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 7 per cent.

APRIL.

Seasonable in temperature, dry, and sunless.—Taken as a whole this month was of about average temperature. The fact is, the days were, as a rule, about as cold for the time of year as the nights were warm. On the warmest day the temperature in the thermometer screen rose to 64°, and on the coldest night the exposed thermometer registered 14° of frost. Both of these are rather low extreme readings for April. As in the previous month there occurred at no time any very marked changes in temperature during the course of it. Rain or hail fell on 16 days, and to the aggregate depth of 1½ inch, which is half an inch below the average for the month. No snow fell during this April. The falls of rain were more frequent than usual, but at no time unusually heavy. The sun shone on an average for less than four hours a day, or for 1½ hours a day short of the average duration, so that this was an exceptionally sunless April. The wind was, as a rule, of about average strength, and in the windiest hour the mean velocity amounted to only 13 miles—direction W.S.W. The mean amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by six per cent. E. M., Berkhamsted, May 4, 1910.



ASTER SEEDLINGS: R. H. M. The plants are attacked by the Aster disease. Burn the affected seedlings and make a fresh sowing, taking care to use clean pans and new soil. As a preventive, spray the soil in the seed-pan lightly with a rose-red solution of permanganate of potash.

CARNATION SOUVENIR DE LA MALMAISON: A. T. K. The plants are not diseased, but have been afforded too much moisture both at the roots and in the atmosphere. There is no "rust" present, and only good cultivation is needed to bring the plants to a proper condition of health. A frequent cause of the trouble such as your plants exhibit, is keeping them growing too freely in the winter, whereas they require a condition of rest, and almost perfect dryness at the roots.

CARNATIONS WITH DAMAGED PETALS: G. J. There is no disease present; the damage has been caused by some external agency, such as excessive fumigation, an overdose of chemical manure, or burning caused by bright sunshine whilst the flowers were damp.

DEFINITION OF AN AMATEUR GARDENER: W. J. Our correspondent asks us to give a detailed definition of an amateur gardener as far as judges consider amateur gardening. He states that he exhibited some plants at a local show and was awarded a silver cup, but that afterwards, his opponents lodged a protest on the ground that he was a professional, because he sells surplus plants occasionally. He is engaged at a local wine and spirit merchant's, in charge of the bottle-washing department, his hours being from 6 a.m. to 6 p.m., and no half-day holiday; all his gardening is done during meal hours, before 6 a.m. and after 6 p.m. The show committee were equally divided on the protest, and they eventually called four professional florists, who also were equally divided, and the decision was given against him after the secretary's opinion was heard. The whole question depends upon the extent to which you engage in the sale of surplus plants. If larger crops than you require for your own use are intentionally grown for profit, your disqualification would be justified, but if you only dispose of produce of an over-abundant crop you might be properly considered an amateur. The best definition of the term is that drawn up by the Rev. W. Wilks, and accepted at the conference of Mutual Improvement Societies, held in the R.H.S. Hall on October 24, 1908. This is as follows:—"An amateur is a person who grows plants, fruits or vegetables (either personally or by paid labour) solely for the enjoyment or for the domestic use of the produce, and not with the object of pecuniarily benefiting by it. Neither a nurseryman (nor his assistants), a gardener who receives wages (or is paid in kind), or any lady or gentleman who grows garden or orchard produce for the purpose of sale is an amateur. This rule does not necessarily exclude a person who sells surplus produce arising from an over-abundant crop or from exuberant natural increase, but who the officials of the show at which the question arises are satisfied does not intentionally grow for sale. Whenever any person is recognised by the officials of a show as coming under the definition of 'amateur' in their particular district or under their show rules, the judges must make their awards without any preference as to whether such recognition is right. The duty of deciding who is and who is not an amateur in any particular district lies with the officials of the show, and not with the judges."

DOUBLE WALLFLOWER: F. H. The variety of Wallflower which you say was found growing on an old wall, is the same as that sent us by Mr. A. Hope (see p. 243), under the name of Old English Double Wallflower.

MANURE FOR CUCUMBERS AND TOMATOS: H. U. Stable manure (including the horse-droppings) is the most suitable kind of animal manure for the growth of Cucumbers and Tomatos. This should be thrown together in a heap, and be turned every day for a week or 10 days, shaking the straw out well in doing so, in order to allow the gases caused by fermentation to escape, and, at the same time, hasten the process of decomposition. When well-decayed, the manure will be fit for mixing with an equal quantity of soil with which to form the mounds or ridges on which to plant the Cucumbers at from 2 to 2½ feet apart. It is preferable to set the individual plants on mounds consisting of a peck or two of soil, if the plants are planted out of 3-inch pots, pressing the soil around the balls in planting, and afterwards adding some of the compost to the thickness of about 2 inches as the roots push through the soil. Continue to make such additions until the intervening spaces are filled level with the summit of the mounds, adding more as the roots push through the surface. The soil need not be heavily enriched for Tomatos, but, after the plants have set good clusters of fruit, a liberal surface-dressing of manure should be placed between the rows; each successive watering will wash the manurial properties down to the roots, and thereby add to the weight and quality of the crop. If artificials are required, use nitrate of soda and superphosphate, repeating small doses at intervals rather than affording a quantity at one time.

MYATT'S RHUBARB: O. B., Sweden. The raiser of this Rhubarb and of the Parsley which

bears his name was a market-gardener some 50 years ago. We do not know that any member of his family now exists. The site of his nursery has long since been built on.

NAMES OF PLANTS: W. H. B. *Scilla italica*.—H. S. 1, *E. ica arbor.* 2, *E. carn.*—F. J. C. *Cattleya Skinneri alba*. The plant should be worth several guineas.—A. C. H. 1, *Cypripedium Measuresianum* (villosum × venustum); 2, *Cypripedium Lawrenceanum*; 3, *C. exul*; 4, *Vanda suavis*.—D. M. 1, *Stelis Bruchmuelleri*; 2, *Pleurothallis velatocalis*; 3, *Odontoglossum Andersonianum*; 4, *O. triumphans*; a poor variety; 5, *O. Hallii*; 6, *O. Andersonianum* *Ruckerianum*.—R. O. 1, *Odontoglossum blandum*; 2, *O. Hunnewellianum*; 3, *O. Lindleyanum*; 4, *Oncidium varicosum*; 5, *Masdevallia polysticta*; 6, *Oncidium barbatum*.—Oxon. *Epidendrum alpinum rubrum*.—E. P. *Broughton*. Probably *Dendrobium Farmeri*, so far as can be determined from the shrivelled flower, and without a description of the growth.

NARCISSI DISEASED: T. & Son. The plants are affected with "yellow stripe," a bacterial disease which starts in the bulb. No cure is known. Treat the ground in which the bulbs have been planted with superphosphate. Lime favours the disease.

PEACH LEAVES DISEASED: C. G. The foliage is badly attacked with "blister." The recent cold winds have been favourable for the spread of this disease. Remove the injured leaves as soon as detected and burn them, and prune the affected branches to healthy wood. Spray the plants with a dilute solution of ammoniacal copper carbonate, and repeat the spraying in about three weeks' time.

POLYANTHUS: W. W. The plants are not diseased, but show deterioration such as is often the case with old plants of this *Primula*. There is an inclination to fasciation in the plants, which also points to the need for fresh stock.

RICHARDIA (CALLA), &c.: T. R. There is no disease present; the damage has been caused by an excess of moisture in the atmosphere. Allow the plants more fresh air and do not damp the houses too frequently. The *Humea* is affected with the well-known root disease caused by *Rhizoctonia*. Water the plants with a solution of nitrate of potash, at a strength of one ounce in one gallon of water. The *Pelargonium* is affected with a bacterial disease. Do not employ any of the unhealthy plants for stock purposes and use great care in affording water.

SCHOOL OF GARDENING: O. B. Apply to the secretary of the Royal Horticultural Society, Vincent Square, Westminster, or the Principal of University College, Reading. High-class nurseries, private gardens, or market establishments offer good training grounds in their respective sections of gardening, but no scientific instruction is provided in them as at Wisley and Reading.

SEEDSMAN AND FLORIST: A. H., Bees. As you have no experience in nursery work or horticulture generally, your venture in the business will be attended with a considerable amount of risk. Your best plan is to insert an advertisement, and either place your money in a concern already established, acting as a partner, or secure the services of some competent man as manager. With regard to your question of return you may expect from a capital of £200, this would be impossible to answer, as everything would depend upon circumstances.

WOODLICE: E. P., Broughton. Prepare traps by hollowing out pieces of Potato, Turnip, &c., and place these hollow side downwards, in the haunts of the pests. Examine the traps each morning, and destroy those caught. Steiner's vermin paste is said to be effective. Wood trellis or other movable woodwork in the house should be lifted periodically, and the woodlice found underneath destroyed. Rubbish of any kind harbours the insects, and should not be allowed to accumulate in the houses.

Communications Received.—C. H.—Miss E., Ryde—W. B.—Mrs. H., Surrey—W. H. B.—W. A. N.—E. P.—H. S.—W. S.—R. R.—Wessex—B. R.—J. E. P.—E. F.—A. R. D.—R. G. H.—F. J.—W. B. H.—H. F.—S. & Sons—Miss H.—W. D. T. & Sons, Ltd.—E. A. D. S.—I. J. C.—H. & G., Ltd.—H. S. T.—T. R. T. W. B.—J. S. & Sons—W. & N. R. P. B.—B. G.—W. A. C.—S. A. H.—H. J. H. Co.—F. R. W.—H. J. C.—J. F.—A. P.—J. C.—F. W. C.—A. T.—C. H. H.—F. J.—E. H. J.—W. G. O.—R. H. P.



THE

Gardeners' Chronicle

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FRUIT-TREE BLOSSOM.

ONE of the chief advantages of a dripping spring, so far as fruit-growers are concerned, is the considerable degree of safety it affords against damaging frosts. There is no complete safety, for many a time since the middle of April anxiety has been caused by a shift of wind into the north-western quarter. But here, near the south coast, the only frost of any consequence that has occurred since any fruit tree has been in blossom was that of the morning of April 23. On that occasion I registered only 3°, and this is not enough to do any harm to fruit-blossom. In the Maidstone district, however, probably in other parts of Kent, and certainly in some parts of the Midlands, there were 6° of frost, and a few reports mention damage to Gooseberries as the result. At the time of writing we are not by any means past danger from frost, and shall not be so until the end of the current month. Still, every week of exemption from damage

reduces the risk of it. The last week in April and the first fortnight in May cover the most critical period of the season in relation to frost in the southern half of England, while a week's extension must be allowed for districts further north. Up to the time of writing no report of serious damage to fruit-blossom has reached me, though there are some rumours of injury as the results of frost, cold wind, or hail.

All kinds of fruit trees have blossomed fairly or profusely. Gooseberries have set a fair crop, but they are not as thick on the bushes as they were last year. For some unknown reason birds failed to make their usual attack on the buds during the winter, at least in my plantations. They paid more attention to Red Currants and Plums, and did much damage to the former, as well as to choice Plums in my private orchard, in spite of preventive measures. Where they left the bushes alone there is a fair show for Red Currants. Most kinds of Plums, now nearly out of blossom, have made a good or fair show. Rivers's Early Prolific, Black Diamond, Oullins's Golden Gage, and Reine Claude Violette are exceptions in my orchards, while the old Greengage had less than an average display. Czar, Victoria, and Pond's Seedling flowered profusely, and Gisborne, Monarch, and Coe's Golden Drop moderately. All kinds of Pears were plentifully covered with bloom, and never before has it been noticed to stay so long upon the trees as it has this season. Cherries also have been densely covered with flowers. Black Currants were very late in coming into blossom, for the flowers were not fully out at the end of the first week of May, even in this southern district. There is about an average show. Strawberries appear to be flowering well, but they are not by any means early. Of Raspberries it is too soon to form any opinion.

Apple blossom, which at one time threatened to be out very early, has been exceedingly slow in developing, checked as it has been by cold winds and lack of sunshine by day, and slight frosts at night. Very few varieties, even in the extreme south of England, were in full bloom at the end of the first week of the present month. As to the amount of blossom, it differs greatly according to the variety, some varieties are making a profuse display, while others make a very small show, or practically none at all. In my case, Bismarck, Bramley's Seedling, Blenheim Pippin, and Dumelow's Seedling show very little bloom, the last being almost entirely barren. Moreover, among several other varieties there are many trees almost or entirely blossomless, while the rest have a full or fair show. There are some curious features in this disparity, as, for example, a good set of blossom on the lower halves of rows of Irish Peach and Mr. Gladstone, with hardly any on the upper halves. Further, it is noticeable that good displays of blossom are common, as a rule, only on mature trees. In a large plantation of Apples planted in the autumn or winter during 1905 and 1906, the promise of fruit on most varieties is much smaller than might have been expected from trees of their sizes. Cox's Orange Pippin, five years from the planting, is almost devoid of blossom; indeed, entirely so, except on very few trees. The same variety in an older plantation is blooming freely. Mature trees of Beauty of Bath,

Worcester Pearmain, Stirling Castle, Warner's King, Queen, Domino, Claygate Pearmain, Allington Pippin, Golden Spire, and Newton Wonder are among the best varieties in promise.

My theory of explanation as to the disparities noticed above, is that the cold and wet summer of 1909 was against the ripening of fruit-buds, consequently it is mainly buds which developed satisfactorily in 1908 that have come to blossoming perfection this season.

There is another point as to the fruiting of Apples which has not received sufficient investigation. The tendency of certain varieties to bear in only alternate seasons, there seems reason to believe, is more common than is generally recognised. Golden Spire with me is always an alternate fruiter. In one year the branches are so thickly covered with fruit that they resemble ropes of Onions; in the next they are entirely fruitless. Nevertheless, the trees do not all fruit in the same season. Early Julyan is almost as decidedly an alternate bearer, and I think that Bramley's Seedling, Warner's King, and Lord Grosvenor show a tendency in the same direction.

At present, the prospect of the Apple crop is doubtful. Two large growers in different counties state that they have a very poor show of Apple blossom on the whole, while a moderate rather than a great crop seems to be promised in two or three extensive fruit districts concerning which reports have been published.

FRUIT PESTS.

It would be very interesting to learn from readers of this article in different parts of the country whether they have noticed a remarkable exemption from attacks of the aphid such as that in which I am rejoicing at present. There is a point of great importance attaching to this question. Last summer I was much struck with the freedom from aphid of a certain large fruit farm, and, on inquiring of the foreman how he could account for this good fortune in a season in which the infestation of Apples and Plums was generally about the worst ever experienced, I was informed that he attributed the exemption to the trees having been sprayed with lime and sulphur just when the buds were on the point of bursting. He thought that the wash destroyed the eggs, or prevented them from hatching, while it certainly killed any mother-queen aphides which were reached by the spray. Acting upon this suggestion, I deferred my usual winter spraying until the buds were just beginning to burst on Plums and Apples, using lime and sulphur, which had been employed in some previous years in February. Many Apple trees, when the spraying was done, were advanced enough to show clusters of blossom-buds on the point of bursting, and not the slightest harm was done to them. It is a fact that in a large plantation of young Apple trees densely and persistently infested with aphides last season, not a single specimen was found on an examination of every variety on May 6. Similarly, in a mature Apple plantation, slightly infested last year, only two or three aphides have been found; and in a Plum field, in which the trees were smothered with the pest

in 1909, fewer than a dozen have been found during several searches, and the eggs on only one variety. A much more emphatic experience in this connection, however, is that of a distinguished entomologist, who also sprayed his Apples and Plums with lime and sulphur just before the buds burst. In his case some "control" trees were left unsprayed, and these are infested with the aphid, while the sprayed trees are free from the pest. He says that he is almost certain that the spray prevents the eggs from hatching.

Obviously the spraying had not any effect upon the eggs of the Apple sucker, some varieties, on which eggs were found, having become infested. But now there is another lesson to be learned. The infested trees were sprayed with quassia and soft soap wash, 12 lb. of each ingredient to 100 gallons of water; most of the clusters of blossom-buds were so tightly huddled together that it might have been supposed that the spray would not penetrate to reach the suckers. The spraying, however, was done profusely, and, three days after the operation, numbers of dead suckers were found, with hardly any living ones.

Caterpillars, particularly those of the winter moth, are very numerous among the clusters of Apple blossoms and in the foliage of Plums. The Plums will have been sprayed with arsenate of lead wash before these remarks are in print, while each kind of Apple will be similarly treated as its blossoms fall, or before the blossom expands in the case of late-blooming varieties.

It is too early to say much on the question of fungus pests, but there is unfortunately some evidence to indicate that powdery mildew among Apples and brown rot in Plums will be prevalent. *A Southern Grower.*

FERTILISATION OF PEAR AND APPLE BLOSSOMS.

THE present is an opportune time to make investigation on this subject. Considerable work has been done on the pollination of Pears in America by Mr. M. B. Waite, but very little has been attempted in this country. In 1902 and 1903 Mr. F. J. Chittenden tested 15 kinds of Pears to see whether they would set



FIG. 127.—KING ALBERT'S EXHIBIT AT THE BRUSSELS EXHIBITION.

(See p. 316.)

fruit with their own pollen (i.e., were self-fertile), or whether it was necessary for them to receive pollen from other varieties (i.e., were self-sterile). The following were the varieties tested:—Conference, Durondeau, Bellissime d'Hiver, Beurré d'Amanlis, Beurré Superfin, Catillac, Doyenné du Comice, Easter Beurré, Emile d'Heyst, Jargonelle, Josephine de Malines, Louise Bonne of Jersey, Pitmaston Duchess, Williams's Bon Chrétien, and Olivier de Serres. In the first year all proved self-sterile, except Conference and Durondeau. In the second year none set fruit with their own pollen save Bellissime d'Hiver, which set one fruit out of 18, and Pitmaston Duchess, which set one fruit out of

12, showing merely the possibility of self-fertility of these two varieties. The conclusion is that none of these varieties should be planted in quantity without intermixing them with other sorts in order to secure pollination. In reference to this point, I may state that whilst engaged in farming at Swanley I planted 40 trees of Pitmaston Duchess Pears at a distance from any other Pears. For four years, though blossoms were plentiful, they did not fruit. I replanted them on another part of the farm amongst other Pears, and they commenced to fruit satisfactorily.

In 1903 and 1904 Mr. F. J. Chittenden tested certain varieties of Apples to see whether they were self-fertile, placing manilla bags over the flowers. The varieties tested were Beauty of Kent, Bismarck, Bramley's Seedling, Cellini, Claygate Pearmain, Cox's Orange Pippin, Ecklinville Seedling, Gladstone, King of the Pippins, Lane's Prince Albert, Lord Derby, Lady Sudeley, Mannington's Pearmain, Newton Wonder, Northern Greening, Peasgood's Nonesuch, Royal Jubilee, Sandringham, Schoolmaster, Stirling Castle, Sturmer Pippin, Dumelow's Seedling and Worcester Pearmain, with the result that the only varieties that set fruit with their own pollen were Gladstone, Stirling Castle, and King of the Pippins. In the case of Lord Derby and Schoolmaster, in the first year's trial, they did not set fruit; in the second year's trial these two varieties did set fruit. Mr. Niels Esberg, of Esbjerg, Denmark, an expert in fruit-growing in the employ of the Danish Department of Agriculture, when visiting England last year, informed me that on the small holdings in his country there may often be seen an Apple tree, a Pear tree, or a Cherry tree in a garden at a distance of, say, 200 yards or more from other trees. These trees are frequently without fruit, and, in Mr. Esberg's opinion, the cause of infertility is that no other fruit-trees are near. An interesting case is told me by Mr. Shrivell, of Golden Green, Tonbridge. A large Bigarreau Cherry tree bore good crops of fruit whilst a hive of bees was situated near it, but the bees had foul-brood, and were destroyed, with the consequence that for three years the tree bore hardly any Cherries. Since again placing a fresh hive of bees near the tree the Cherries have been plentiful. Mr. Shrivell strongly



THE BRUSSELS EXHIBITION.

FIG. 126.—SOME OF THE GREENHOUSE PLANTS EXHIBITED BY M. FIRMIN DE SMET.

(See p. 316.)



THE BRUSSELS EXHIBITION.

FIG. 128.—EXHIBIT OF AZALEAS BY M. MAENHOUT VAN MELLE.

(See p. 316.)

recommends the keeping of bees near orchards, and considers the work they do in setting fruit would be recompense for the trouble, even without considering the honey. More information on the subject is required. *Cecil H. Hooper.*

THE DAFFODIL SEASON.

OWING chiefly to the beautiful weather which prevailed during almost the entire month of March—a sufficiently rare experience in Scotland—the Daffodil season has this year been unusually memorable, not perhaps so much for the numbers as for the wonderful size and splendour of the flowers. I have never seen Emperor, Empress or Sir Watkin, for example, larger or more impressive in my garden. New and, for the most part, highly interesting hybrids are being constantly produced, but I venture to doubt if any of the three famous varieties I have mentioned will soon be superseded. There are doubtless many Daffodils which any lover of this exquisite flower would be proud to possess; and supreme among these is the gigantic, ivory-white beauty that bears the name of the late Peter Barr; but it still appears in the catalogues at a prohibitive price, as, for a long period, also did its lovely predecessor, Mme. de Graaff, the queen of all the Daffodils; which, in virtue of its reduction in price, not to speak of its marvellously accommodating character when naturalised in grass, is now cultivated extensively. Here, in harmonious association with the fragrant and effective *Narcissus Ornatus*, it greatly enhances the beautiful series of floral pictures obtainable from my study window. There also are flowering gracefully *Narcissus albicans*, the *Moschat* of Haworth, *Triandrus albus* and *Queen of Spain*.

One of the most fascinating Daffodils raised at the Surbiton Nurseries is my namesake, with clear, lemon-coloured trumpet and wings of great substance, which have a most delicate veination or suggestion of green. It might be characterised as an improved Emperor, and is admirable whether grown in the garden, or, as here, when naturalised in grass beneath over-arching trees.

Conspicuous among new Daffodils of the latest attractiveness and of quite recent intro-

duction are Bedouin, a grand representative of the *Incomparabilis* section; *Corallina*, an eminently graceful flower of the *Leedsii* type; *Fiery Cross*, a most distinctive variety of the section *Engleheartii*; *George Philip Haydon*, a Daffodil of rare refinement, with conspicuous yellow trumpet and rich, primrose-coloured perianth; *Furnace*, of the *Burhidgii* type, and *Lord Kit-chener*, which, like the great Sir Watkin, "the King of the Incomparables," has flowers of radiant colour and of noble dimensions.

I have been greatly interested to learn from a recent issue of the *Gardeners' Chronicle*, that perhaps the finest variety of *Narcissus Poeticus* that has hitherto appeared, and which has re-

ceived an Award of Merit from the Royal Horticultural Society, bears the name of the late Mr. Matthew Arnold, who was a great cultivator and lover of flowers. He was especially an admirer of *Narcissus Poeticus*, which I have heard him eulogise. *David R. Williamson.*

THE COMMERCIAL SIDE OF "FRENCH" GARDENING.

THE cost of laying out a "French" garden for commercial purposes is much greater than is common in any other form of gardening.

The size of such a garden in France is two acres: one quarter is covered with glass, another quarter is reserved for the transfer of glass for summer crops, and the remainder is utilised for work out-of-doors, which is an important item and a necessary complement to the economical working of the glass department.

By having a greater proportion of glass than this the owner not only increases his risks, but he has to solve the difficulty of placing and utilising the whole of his glass to the best advantage.

When skilled labour, both male and female, is available, the amount of glass must not exceed 1,000 lights and 3,000 to 4,000 cloches, or other difficulties will have to be faced. These are the increased labour for watering and ventilation also the packing of crops, which must always be done in a very short time.

The standard number of lights and cloches in a French garden of this description in the Paris district is 600 and 3,000 respectively.

The main points to consider in choosing a suitable site for a "French" garden are:—(1) It must be where manure can be had with little expense for carting; (2) a good supply of water must be obtainable; and (3) there must be a ready market near, either wholesale or retail, for the sale of the crops.

The quality of the land, provided it be arable, is of little importance, as the decayed manure from the old manure beds supplies any deficiency in this respect.

The frames must be made to admit as much light as possible. They should be of a handy size for manipulating quickly and easily. The French pattern of frame and light has been



THE BRUSSELS EXHIBITION.

FIG. 129.—ONE OF THE EXHIBITS OF CHOICE FRUIT.

(See p. 316.)

copied exactly by an English firm, and may be had at a reasonable charge. The frames are made according to the size and shape of the lights, and clips are fixed on them to keep the latter in their proper positions. When the lights are placed on the frames no part projects, so that a very narrow path between the frames suffices.

The cloches made in France are the only ones to be recommended. They are made evenly, and the silicate used in the glass gives a greenish tint to the cloche: this tint weakens the strength of the sun without diminishing the amount of light.

An adequate supply of manure is the mainstay of the "French" garden. It should be long, strawy, horse manure. The Parisian grower obtains it direct from the stables, and either pays so much for each load or contracts to pay a certain price per horse. The contract is made for 12 months, and preference is given to stables where at least five or six horses are kept. To work a "French" garden at a profit the manure must not cost more than 5s. to 5s. 6d. per ton delivered on the ground.

The supply of water must be so distributed as not only to provide the necessary amount, but also to facilitate the watering of the whole garden in a comparatively short time.

When the water is obtained from a company the cost of laying the pipes varies from £50 to £70. In this case the contract with the company is made for a certain quantity of water each year, so as to equalise the enormous amount used in summer with the lesser quantity required during the winter.

When means and circumstances allow, it is best for the grower to have his own water supply, as he can then arrange his pipes so as to obtain the pressure he requires, this being an impossibility when the water is had from the main.

Though the outlay to obtain a private supply amounts to from £80 to £120, and this does not include the cost of digging a pond or a well, as the case may be, the actual cost of working is about one-eighth of the charge made by a water company, and in the course of a few years proves a profitable investment.

The quality and strain of the seeds are important considerations in the intensive culture of vegetables. The grower requires certain varieties which can be grown concurrently with other sorts of vegetables, the main requirements of the whole batch being similar. Most French gardeners grow and interchange seeds: a few selected plants supply as many seeds as they require.

Inter-cropping is the essential principle of the system, and the key to the success of the enterprise, but in this matter most beginners fail. The principle is to grow different crops having similar requirements together, each crop requiring the whole space at a different time. The crops must be so managed as to be ready for clearing off the ground or be in too early a stage of growth to require the room when another is planted.

A good manager of a French garden has always a programme of work for the cropping of his ground drawn up at least six months beforehand. This is based on:—(1) The particular circumstances in which he is placed; (2) the special requirements of the market; and (3) the cropping of the whole of his glass over the longest period.

He never aims at obtaining crops excessively early, as he has to consider the extra cost of production and the increased risk and probable failure of very early crops.

He rejects, as a rule, crops which monopolise the glass for a long period, and prefers two or three crops, which diminish the risk of failure.

The amount of decayed manure at the gardener's disposal is also an item for consideration when drawing up a programme, and scarcity of it explains why certain crops have not yet been grown on a large scale in England, although

they will probably be extensively cultivated in a few years to come.

The economy of labour and mechanical work effected by growing a limited number of crops, which give a bigger bulk of produce and diminish the cost of production must also be considered. A wholesale trade is preferable to a retail one, as the latter necessitates extra expenses and labour, and the residue of the crops has to be marketed, and generally without much profit.

This system is at present greatly handicapped in this country, as the summer crops fail to realise a remunerative return. When the public is better acquainted with this class of produce it is hoped that the crops will command a better price.

The system is of too recent introduction to permit of trustworthy estimates of returns. The quantity of decayed manure available is still too small to obtain effective results. Difficulties are still encountered in clearing certain crops, but the average prices are slightly better than those that obtain in Paris. *P. Aquatias.*

A BOTANICAL GARDEN IN EAST JAVA.

My botanical garden is situated in the grounds of the hotel. At present the number of plants it contains is about 3,000, and this number is constantly increasing. The average temperature in December last was 64°, which is about 2° lower than in 1908; we had 23 rainy days, which is a small number for the last month of the year. The temperature at 8 p.m., for every day of the month, was constantly 62°, which gives some idea of the very small range in the wet season. The range in daily maxima was from 68°–70° and daily minima from 55°–65°.

A tree of *Herminiera elaphroxylon*, from Senegambia, has reached a height of 9 feet in one year from the seed. The plant has not flowered as yet with me; *Abutilon striatum*, from Brazil, is 7 feet high and permanently one mass of yellow flowers; the variety *sulphureum* has attained a height of 4 feet only; *Thunbergia fragrans* grows here like a weed, it flowers the whole year round and produces an abundance of seeds; *Cæsalpinia Bonducella* makes a shrub of 6 feet in one year from seed; *Tecoma stans* is covered with its fragrant, yellow flowers and is 6 feet in height, although only 12 months old. *Mimosa Spegazzinii*, 10 feet high, produces an abundance of flowers and seeds the whole year round; *Cassia lævigata* was one sheet of golden flower a few weeks ago, it is now setting its fruits; the red flowers of *Tropæolum pentaphyllum* are very pretty when they are produced in large quantities, as is the case with my specimens, which seem to fruit freely here. *Hunnemannia fumarifolia* flowers persistently: it seems to be a perennial, but this can only be ascertained after many more months, as all annuals flower here for a very long time before they die. I obtained seeds of a species of *Mimosa* from Brazil and sowed them about five months ago, with the result that I have three shrubs, each about 11 feet high, just flowering. Many plants which I raised from Brazilian seeds, as, for instance, *Clitoria ternata*, *Cajanus indicus* and *Crotalaria semperflorens* are also indigenous in this country. I should very much like to try European shrubs and trees. I imagine the species of Willows will grow here perfectly, as there is a very large specimen of *Salix alba* in the immediate vicinity. This plant was brought from Europe by an English lady living near to the hotel and is now about 12 years old. It is a gigantic tree with an immense head. It flowers here in July, whereas in Europe it does so in April or even March. The tree is always in full vegetation and never sheds its leaves. Seeds of the Walnut, *Juglans regia*, germinated here in a fortnight. All species of *Juglans* shed their leaves once or twice a year. A

plant of *Sutherlandia frutescens* is 2 feet high and is flowering within six months from seed-sowing. *Agave americana* grows here like a weed; one specimen has leaves 6 feet high. *Begonia robusta* is a very large plant with enormous leaves; it grows wild here. It could be used for hybridization, and I shall be willing to send seeds to Europe as soon as they are to be had. *Carica Papaya* grows with great freedom; I have many plants along the roads of the garden, and they produce ripe fruits. *Mangifera indica* also fruits here, but the quality is much inferior to the fruits from the lowlands. Species of *Eucalyptus* grow amazingly, but most of them have very thin stems, exceptions being *E. pilularis* and *E. paniculata*. *E. pulverulenta*, with its blue-powdered leaves, make a fine show. All the members of the *Umbelliferae* succeed very well. *Orlaya grandiflora* is one mass of flowers; *Gardenia florida* flowers the whole year round. Tropical Palms grow very slowly, but the Himalayan species, on the contrary, develop rapidly. Dahlias are growing in the garden in many thousands of specimens, with flowers of all colours. *Dahlia coccinea* flowers abundantly, but I have only some 20 specimens. *Laurus nobilis* and *Olea europæa* grow slowly, but I have some good specimens of both species. *Schinus Molle* does very well here. *Schubertia grandiflora*, with its odoriferous, white flowers turning to light brown when fading, is a large-growing climbing plant; *Passiflora cœrulea* grows extremely rapidly, but up to the present it has not flowered; *Cytisus laburnum* grows very fast, and it will be interesting to see if it flowers here; other *Cytisus* species are growing also vigorously. *Erythroxylon Coca* is represented by small shrubs, but they flower and fruit. *Trifolium repens* grows and flowers the whole year round. *Ficus elastica* is a large tree and *Hevea brasiliensis* is a small one, the latter growing slowly. *Ficus nitida* grows to enormous specimens, some 50 feet high. *Vernonia josanica* is 75 feet high. *Sequoia gigantea* and *Cupressus sempervirens*, with its varieties, do very well. Of *Thuja orientalis* I have some 100 specimens, ranging from 4 to 15 metres in height; all species of *Pelargonium* succeed well, notwithstanding the heavy and frequent rains. *Entada scandens* grows slowly and will need many years to become as gigantic as in Buitenzorg. *Musa paradisiaca* grows wild in the primeval forests here. *M. Buysman, Nongko Djadjar, near Lawang, East Java.*

PLANT NOTES.

CALATHEA CROCATA.

THE fact that this *Calathea* was given an Award of Merit by the Floral Committee of the Royal Horticultural Society on March 22 is very interesting in this way. Several instances might be quoted of plants which, given an award, were afterwards found to be of such superior merit that they obtained the higher honour of a First-class Certificate. In the case of the *Calathea*, however, the direct opposite occurs, as it was given a First-class Certificate on February 8, 1881, when shown by the late Mr. William Bull, of Chelsea, and now, nearly 30 years afterwards, an Award of Merit is bestowed upon it. The fact that *Calatheas* are so generally known in gardens as *Marantas*, and are referred to under that head in the Royal Horticultural Society's official list of plants, flowers and Ferns, which have been certificated by the Society, is doubtless the cause of the previous honour being overlooked. The case of this *Calathea* serves to show that First-class Certificates were once more easily obtained than they are at the present day. *Calathea crocata* is a very pretty flowering plant, in which respect it stands out from its immediate relatives, but, as far as my experience goes, it can scarcely be said to be well known in gardens. W.

NEW VARIETIES OF *HYDRANGEA HORTENSIS*.

WITHIN the last few years several distinct varieties of *Hydrangea hortensis* have been introduced to commerce, and on May 3 two of them were given Awards of Merit by the Royal Horticultural Society. Though exhibited by Messrs. Jas. Veitch & Sons, both are of Continental origin, one being raised by M. Lemoine, of Nancy, and the other by M. E. Moullière, Vendôme, France. The first variety, Ornement, was distributed by M. Lemoine in the autumn of 1908. It is a very promising variety, the sterile blossoms, which go to make up a large, bold truss, being of a very pleasing blush shade, and

Beside these, M. Lemoine has raised about half-a-dozen other varieties, one of which, Radiant, though it flowered but weakly with me, promises to be, as described by the raiser, the deepest-coloured among the *Hydrangeas*.

The notice of new varieties is not yet exhausted, as last year Messrs. Stuart Low & Co. were given an Award of Merit for a white form of *Hydrangea hortensis*, and it is but two or three years since a sterile variety of the North American *Hydrangea arborescens*, known by the varietal name of *grandiflora*, was catalogued. Whether it will ever be grown to the same extent as *Hydrangea paniculata grandiflora*, as was predicted of it when first sent out, remains to be seen. W.

the centre of each turf I inserted the best eyes I could get and covered them with fine soil. As the roots appeared they were covered with leaf-soil, this not being so readily disturbed by the watering pot as the ordinary soil. They were started in a Cucumber-house in January, and they formed shoots a yard long by the first week in May, which is a good time for planting, as the soil is warm owing to sunshine. If good "eyes" have been inserted, rods will be made the first year nearly equal to those turned out of pots at the end of their second year, and even weaker eyes will be equal to those grown in pots at the end of their first year. In planting, I moved the ends and sides of the boxes and slid the turves into their place, watered them



THE BRUSSELS EXHIBITION.

FIG. 130.—AN EXHIBIT BY MM. VILMORIN, ANDRIEUX ET CIE.

(See p. 316.)

distinctly toothed around the margins. This latter feature is no doubt caused by the influence of an old variety—*stellata fimbriata*, which is one of the forms used by M. Lemoine in crossing the most promising of the garden varieties.

The other variety is named Mme. Emile Moullière. The flowers of this are almost white, with a small pink centre. It has serrated petals, but to a much less extent than in the variety Ornement, while it loses somewhat in effect owing to the flowers not being flat.

Two others of M. Lemoine's varieties were also shown at the same time, but no award was made them. They are: Dentelle, a pink flower with serrated edges, and La Lorraine, which in colour resembles the common *Hydrangea*, but the edges of the flowers are serrated.

CULTURAL MEMORANDA.

PLANTING VINES.

In planting vineries it is usual to employ vines that have been grown one year in pots, and the writers who recently engaged in the controversy on pruning vines in these columns seem to have established or renewed their vineries by such plants. Though I have planted many pot vines after soaking the balls and carefully disentangling the roots, I have had better results from young vines in the following manner:—I procured from my grocer some boxes, not less than 4 inches deep, varying a few inches in width and length from a foot upwards. I cut turves, 2 inches thick, to fit the boxes, and in

with tepid water, and covered them with 6 inches of soil.

In reading the correspondence on the subject of pruning vines I failed to understand how any system of pruning vines in the first year or two of their growth could cause them to be worthless after the lapse of 30 years or so.

When at the Shrewsbury Show two years ago I was informed that the splendid bunches of Black Hambro' Grapes exhibited by Mr. Mullins, Eastnor Castle Gardens, had been cut from vines more than 50 years old. I presume those vines had been cut down more than once in that time, and young rods trained to take their place. All vines can be renovated in that way without the cultivator suffering a much diminished crop. W. P. R.

THE ALPINE GARDEN.

OURISIA COCKAYNIANA.

OURISIA is a small genus, the best-known garden species being the Chilean *O. coccinea*, with beautiful scarlet flowers. Like *O. macrophylla*, which is a recent acquisition that flowered last year for the first time, *O. Cockayniana* is a native of New Zealand, being found on the South Island, growing in boggy ground at an elevation of between 3,000 and 4,500 feet. In its native habitat it forms large patches with creeping and rooting stems matted together. It was introduced into cultivation with many other New Zealand plants by Capt. Dorrien Smith, in 1908. The small, ovate leaves are bright green above and purplish beneath, while the short, broad petioles have ciliate margins. The flower-stems are erect, 3 inches to 6 inches high, with several whorls of three, sessile leaves. In the upper whorls the flowers are produced on pedicels $1\frac{1}{2}$ inch long. They are pure white, with a few yellow hairs in the throat, and are nearly an inch across. Apart from its size, the habit of the plant is very similar to that of *O. macrophylla*, while the flowers are quite as large. It is most nearly allied to *O. caespitosa*, only differing from that species in being larger in all its parts. *O. macrophylla* proved hardy at Kew last winter, having been planted out in a moist and shady position in the rock-garden. *O. Cockayniana* was afforded the protection of a frame during the winter, but is probably quite as hardy as the other new species. Both grow well in peaty soil and evidently prefer a moist and half-shady position. *O. macrophylla* produced plenty of seeds last summer, which germinated freely when sown as soon as they were ripe. By the winter a good batch of plants had been raised.

STYLOPHORUM JAPONICUM.

ALTHOUGH *Stylophorum diphyllum*, the Celandine Poppy, is a common plant in gardens, *S. japonicum*, the only other species of the genus in cultivation, is seldom seen, though it was introduced to this country in the year 1870, and was figured in the *Botanical Magazine*, t. 5830. The plant is known also as *Hylomecon japonicum*; it is a native of Japan and North-eastern Asia, while the other species referred to comes from North-western America. They are both found wild, growing in shady woods under similar conditions to those which our common Celandine, *Chelidonium majus*, enjoys. *S. japonicum* grows from 1 foot to $1\frac{1}{2}$ foot high, but is more slender in habit than *S. diphyllum*. The stems bear in a whorl at the top two or three pinnate leaves, and from the base of these the flowers are produced on long pedicels. The radical leaves are borne on long stalks, and are similar in character to the stem leaves. While in *S. diphyllum* the pinnatisect leaves are downy on the under-side and irregularly lobed, those of *S. japonicum* are quite glabrous, pinnate, and have incised margins. For general garden purposes, the North American species is the most robust and effective, but *S. japonicum* is a more elegant plant and well worthy a place in the shady border. A fresh importation has been recently received from Japan. *W. I.*

A WINTER-FLOWERING VIOLA.

FROM my window here I enjoy a beautiful sight of a slope of my rockery covered with the lilac and violet flowers of a *Viola*. The plant, which I considered to be a hybrid between *Viola calcarata* and *V. cornuta*, is one of the best winter-flowering subjects I know. It flowers here, at Floraire, from January 1 till December 31 without interruption. It is a dwarf, tufted plant, with pale green foliage; the flowers have the shape of those of *V. calcarata*, but the colour is not the same. The two upper petals are of a deep violet tone, and the centre of the flower, together with the half of the side petals, and a part of the under-petal, is of a light lilac shade. The plants flower as freely in winter as in warm weather. We have named it *floriensis*, because we believe that it is a natural cross which has originated here; but I have seen in an exhibition a plant very similar to mine and which was said to come from Germany, called "*Papilio*." I should like to know whether the two plants are identical, because my *Viola floriensis* is one of the best plants for winter-blooming. *H. Correvo, Floraire, near Geneva.*

The Week's Work.

FRUITS UNDER GLASS.

By E. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Pineapples.—The plants are now growing freely, and the fruits swell more freely in May than at any other time of the year. The house may be closed much earlier in the day without fear of scorching the foliage than would be possible later in the season. Maintain a moist atmosphere at all times, and syringe the house thoroughly when closing the ventilators in the afternoon, allowing the temperature to reach 100° Fahr. Maintain a bottom heat of 80° to 85°, with an atmospheric heat of 70° to 75° at night time. Feed the plants regularly with weak liquid manure and soot water. When the fruit begins to colour, gradually decrease the supply of moisture at the roots and withhold stimulants; also keep the atmosphere drier. When about half the "pips" are coloured, move the plant from the Pine stove to a cool, airy vinery, placing it on an inverted pot. In such a position there will be a free circulation of air, and ample shade from the vines, and the fruit, ripening slowly, will develop the best flavour and have firm flesh. Immediately after cutting the fruit give attention to the suckers necessary for raising succession plants. The offsets will have suffered somewhat under the cool treatment, and it is advisable to return the plant to a strong, moist heat for a short time before detaching the suckers.

Successional Pines.—Close the house about 2 p.m., well syringing the walls and paths, but not the plants heavily overhead, as this causes a soft, spindly growth and makes the surface soil muddy and sour. During very bright weather a little shade may be necessary during the middle of the day. A few light Spruce branches laid on the glass outside answers the purpose admirably. Any plants which have filled their pots with roots should be shifted into larger receptacles, using the compost previously advised.

Young vines.—Give every attention to young vines recently planted. All growths should be allowed to remain, as the development of foliage causes a vigorous root action. A common mistake is made in rubbing out all the buds on the lower part of the vine below the trellis. If these shoots are allowed to remain and pinched to three or four leaves for the first few years after planting, the stem will develop more in accordance with the rest of the vine. When these lower shoots are destroyed, the bole often grows less in circumference at that part than many of the shoots arising from it higher up.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Bulbs.—Any bulbs that have been forced should be planted in the pleasure grounds, where they will produce a good effect in the course of a few seasons. They should be planted at once, so that they may have a long season to retain their foliage, which should be allowed to die naturally, and because the positions of those already established can be ascertained, and the best sites selected for the new ones. If it is intended to plant bulbs in the pleasure ground next autumn, the spots for planting should now be selected and marked. Narcissi and other bulbs thrive under the shade of trees as well as in grass land. Wherever possible, the foliage should be allowed to remain, therefore arrangements should be made to avoid destroying the leaves when mowing the grass.

Staking plants.—This work will require constant attention and a considerable amount of forethought. Plants in the borders are growing fast, and many will soon need supports, which should always be afforded before the plants need them. Where single sticks are employed, these should be strong, well-pointed, neat, and of a proper length. In the case of strong-growing perennials, several sticks are preferable to one, as a natural effect cannot be produced when the shoots are secured in bunches. For the lesser-growing plants, including many annuals, bushy twigs are suitable; these will support the plants without need of tying, and, after a time, the growths will hide the twigs com-

pletely. Good strong raffia is the best material for tying, and the work should be done, if possible, when the ground is fairly dry, employing boards to save the borders from being trodden upon.

The water garden.—Any planting which has been delayed from any cause must be undertaken at once. It is not too late to transplant *Nymphæas* and other subjects. Plants by the waterside, such as *Typha latifolia*, *T. angustifolia*, *Phragmites communis*, and the various *Rushes*, may be divided and transplanted. *Caltha palustris*, the common King Cup, and its double form, also *C. polypetala*, are valuable for early flowering. The Bog Bean (*Menyanthes trifoliata*) is now in flower, the spikes of whitish blooms being very pretty as seen above the water. *Orontium aquaticum*, The Golden Club, is another striking native water plant, adding additional interest until the *Nymphæas* commence to flower. In summer-time no plants are more effective on the margin of the water than the Japanese Iris—Iris *Kämpferi*. The varieties embrace a wide range of colours, and named sorts can be obtained from the nurserymen; but seedlings give almost as good results. Imported stools should be planted at once in a rich, well-prepared soil containing plenty of well-decayed cow manure. Established plants are breaking into growth, and the soil about them should be lightly forked, affording a light top-dressing of well-decayed manure afterwards. Plants of *Iris Kämpferi* may be divided or replanted at this season. The surface of the water will need to be cleared of any scum, and water weeds kept down. We find a large net, attached to a pole, the best means of getting rid of scum on ponds.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Richardia (Calla).—Pot plants which have finished flowering should be placed out-of-doors, reducing the supply of water at the roots gradually, so as to enable the plants to become thoroughly ripened. Where labour is scarce, good results may be obtained by planting *Richardias* out of their pots during the summer months; but it has the disadvantage of retarding the early development of blooms, owing to the check the plants receive when repotting them again in the autumn. After the crowns are thoroughly ripened, the roots should be kept quite dry until about the second week in July, when those requiring it should be repotted. At the time of potting, should an increase of stock be desired, some of the largest specimens may be divided. During the time of ripening, place the plants where they will be fully exposed to the sun's influence.

Ornamental leaved Vitis.—Such species as *Vitis Henryana*, *V. Thomsonii*, and *V. heterophylla variegata* make excellent subjects for pot culture, being useful for the decoration of the conservatory as well as for supplying trails for mingling with cut flowers. The leaves develop their finest colours when the plants are exposed to the fullest sunshine. In the case of *V. Henryana* and *V. Thomsonii*, which put on their most brilliant tints in the autumn, a little extra warmth and full exposure to the light will cause them to colour much earlier.

Lilium Harrissii.—Plants which have finished their flowering, should they be required for forcing another season, must be allowed to ripen their bulbs as soon as the weather permits. Place them in the open, exposed to the sunshine, and gradually reduce the supply of water to the roots until the foliage has decayed, when the pots may be turned on their sides, and the soil allowed to become dust dry. If preferred, the bulbs may be removed from the pots and stored in dry sand, in a cool and well-ventilated building. Last season, at about this date, I purchased a stock of early-ripened Cape bulbs, which were potted up and placed in cool frames. They were kept growing in these structures until it was necessary to place them in a little warmth. The bulbs gave excellent results, producing a supply of bloom throughout December and January.

Lilium speciosum.—There are several types of this beautiful *Lilium*, and all are of value for autumn decoration in the conservatory. Bulbs that are growing freely should be afforded a top-dressing, in which the new roots from the base of the stem may feed, using a loam, peat,

and leaf-soil, in a lumpy condition, mixed with a little manure from a spent Mushroom bed, and a quantity of coarse sand and charcoal. This top-dressing should be applied at intervals of a week or two, just covering the surface of the roots on each occasion. The shoots, as they develop, should be evenly arranged, and tied to neat, green stakes. An occasional fumigation with a nicotine compound will keep the shoots clear of aphides.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of Northampton, Castle Ashby, Northamptonshire.

Figs on walls.—The trees will soon be growing freely and will require attention in regulating and disbudding the shoots. Where the new growths are weak and numerous, a vigorous thinning must be done, this being a far better practice than to allow many to grow which would have to be cut out later. First rub off any misplaced shoots and then select those required for replacing unfruitful or immature wood, destroying the others which are useless. Last year was very unfavourable to the growth of Figs out-of-doors, and much of the wood never properly ripened, so that it may be necessary to train in a considerable number of young shoots. Do not stop any of the growths intended for fruiting, as secondary shoots resulting from such stopping rarely have time to mature before the winter. The essential points in the culture of Figs is to have the shoots thinly disposed to enable them to mature as perfectly as possible, and to keep the roots near to the surface of the soil.

Raspberries.—Stir the soil between the rows frequently with the Dutch hoe. As the young canes develop they should be thinned, leaving only the required number for next year. Raspberries delight in a cool, moist rooting medium, and the plants are gross feeders. When planted in light and rather porous soils a heavy mulching of cow manure should be applied as soon as the young canes are about 1 foot in height. The same remarks apply to the culture of Loganberries and Blackberries.

Black Currant bushes.—Continue to destroy all buds affected with the mite, and frequently syringe the plants with quassia extract, which will destroy the pests as they travel from the old to the new buds.

Pear-leaf blister.—This is the work of a small mite which attacks the young foliage during the present month, causing blisters to form, and in these the eggs are deposited. As soon as the blister becomes visible the trees should be sprayed with the following mixture:—Dissolve six ounces of soft soap in one gallon of water, and then add three tablespoonfuls of petroleum. To this add three gallons of rain-water, and thoroughly mix the whole. Another good remedy is soluble paraffin, which should be sprayed on the trees directly the buds commence to expand.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Peas.—Seeds should be sown now for the July and August crops, making another sowing of main-crop varieties in 10 days' time. Place the seeds in trenches made 4 inches deep and 6 inches apart. If the ground is dry at the time of sowing, lightly tread the seeds into the drills before covering them with the soil, as this will hasten their germination by several days; it is a mistake to sow Peas too shallow. At the time of sowing, draw about 2 inches of the soil over the seeds, and, when the seedlings are a few inches in height, work the soil carefully amongst them until the trench is wholly filled. Peas thus treated do not suffer from the effects of dry weather to the same extent as those sown in shallow drills and covered with the soil in the form of ridges.

Late Peas.—The greatest enemy of late culinary Peas is mildew. The best preventive is deep trenching, manuring, and mulching of the soil. Heavy, moist land is most suitable for this late sowing, which is made here about the middle of June. It is not desirable to sow late Peas on land recently occupied by other vegetables, because the surface soil is then often too dry, and it never becomes thoroughly moistened afterwards before the crop is harvested. If the soil

about the roots of Peas is dry it endangers the crop; therefore, this condition must be guarded against by mulchings placed as close to the stems as possible. The varieties Autocrat, Late Queen, and Distinction may be recommended for late sowings.

Spinach.—Make frequent sowings of this green vegetable, choosing, as the season advances, sites, such as north border, which are not exposed to excessive sunshine. Make a sowing of New Zealand Spinach, if this has not already been done, without delay. This Spinach, raised in pots from seeds sown now, and planted out when danger from frost is over, will provide an excellent substitute in hot, dry weather for summer Spinach. Make a sowing also of Spinach Beet, which will provide a good supply of green leaves throughout the summer and autumn.

Broad Beans.—Where space is plentiful, another sowing should be made in a cool part of the garden. As soon as sufficient pods are formed, pinch the tops out of the plants in order to throw all the energy into the seed vessels. One of the best varieties for this sowing is Improved Green Windsor.

General work.—Take advantage of dry weather to stir the soil with the hoe between the rows of young crops. Give frequent doses of liquid manure to Cauliflowers planted a month ago, in order to hasten their development, so that the most forward will be ready for cutting about the middle of June. Spring-sown Cauliflowers are now ready for planting in their permanent quarters. The variety Magnum Bonum, if planted out now, will provide nice heads by the time the earliest crop is finished. This is the most important batch of Cauliflowers, as the crop comes in between the autumn-sown plants and those sown out-of-doors during the spring. If slugs are troublesome, the bed should be freely dusted with hot lime early in the morning.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Acineta.—Such species as *A. Barkeri*, *A. Humboldtii*, *A. Hrubyana*, *A. densa*, and *A. chrysanthia* are uncommon Orchids and not often seen in flower, nevertheless, they are distinct and very interesting plants. At the present time several of these species are producing their flower-spikes, and care should be taken not to over-water them, or the flower-buds may drop. The plants should be suspended in a moist, shady position in the Cattleya or warm intermediate house, and it is advisable to periodically sponge the large leaves to prevent insect pests. These robust-growing plants should, on account of their pendulous inflorescences, be grown in baskets. Whenever root disturbance becomes necessary, it should be done at the commencement of growth. Shallow, teak baskets should be used, with bars about three-quarters of an inch in thickness. Baskets with two bars on one side and three on the other will afford sufficient depth for the compost. The bottom bars should be about half an inch apart, but should not be covered with crocks for drainage, as they would prevent the flower-spikes growing through. A layer of rough Sphagnum-moss will answer the purpose. A suitable compost consists of Osmunda fibre and Sphagnum-moss, both materials being cut up roughly and well mixed together. During the earlier stages of growth, the plants require careful watering, but directly the new pseudo-bulbs commence to form the supply must be copious. The plants require a rest after the growth is completed.

Schlmania trifida.—*S. trifida* and *S. jasminodora* are also uncommon Orchids. The former produces drooping white flowers of wax-like texture; the other species has sub-erect scapes, and the flowers are also white. Both plants produce flowers which are amongst the most deliciously fragrant of Orchids. They should be treated exactly as advised for the *Acinetas*.

Evergreen Calanthes.—At this season, *C. veratrifolia*, *C. Masuca*, and *C. Dominiana* will commence to open their flowers, and, if kept free from insect pests, will be beautiful objects for several weeks. They do best in the Cattleya or intermediate house, and should be placed low down on the stage, where they may be kept well shaded from strong light at all times. The best time to report the plants is about a month after

their flowering, but it can be done now. Being strong, free-rooting subjects, they require rather large pots, which should be one-third filled with material for drainage, covered by a layer of rough Sphagnum-moss, or a thin turf, with the grassy side placed downwards. The compost should consist of fibrous yellow loam and Osmunda fibre in equal parts. Cut the Osmunda fibre rather finely, add a little leaf-soil, coarse silver-sand, and some small, broken crocks. Pot them firmly, and allow a good space below the rim of each pot for watering, as these plants require copious supplies of moisture throughout the whole year. A top-dressing of the compost placed on the surface of the plants when they are showing their flower-spikes will greatly assist them. The cooler-growing *C. japonica*, *C. Cecilia*, *C. citrina*, and *C. discolor*, now in full growth, will require copious root-waterings when the potting materials have become dry. Keep the plants well shaded from sunshine.

Deciduous Calanthes.—The plants which were reported several weeks ago are now rooting freely from the new growths, and it is necessary to caution beginners against over-watering the plants, especially at this stage, as the growths easily rot if the soil is made too damp. Our plants are carefully examined twice each week, and the most forward of them, if the soil is found to be dry, are sprinkled with tepid rain-water from a can with a fine rose. As the plants become better established, they will be afforded more water, both at the root and in the atmosphere. Keep the night temperature as near to 70° as possible: a low temperature, combined with a damp atmosphere, will soon cause the tender foliage to become spotted and unsightly.

THE APIARY.

By CHLORIS.

Intimidants.—Many beekeepers use far too much smoke when examining hives, and those who are well skilled in the art often go to the other extreme using too little, in consequence getting many stings which could be easily avoided.

Supering.—Where the colonies are strong and the top cells of the brood combs are tipped with white wax, fresh supers should be supplied. For some unknown reason, bees have a great objection to using sections, and will often swarm rather than utilise them. They are much more ready to work in shallow frames. Knowing this, the apiarist will be wise to fit up the frames with full sheets of wired foundation, drone base, and space them with the broad metal ends. Before placing on the crate, arrange a queen-excluder zinc in the line, or the queen may go above and use the super as a brood chamber for the raising of drones. Make the hive as warm as possible by placing on quilts, which should fit well into the corners, and it will be well to place a sheet of brown paper between the quilts. Some beekeepers have no sale for extracted honey, but if the bees only get into the habit of storing above the zinc, much valuable time will be saved, and the shallow frames may, in time, be replaced by sections. Those who have never tried the shallow frames should experiment on two equally strong colonies by using sections in one and frames in the other. This will soon prove convincing. When sections are employed fill them with full sheets of thin foundation of worker base, but leave about half-an-inch space at the bottom to allow for stretching. Separate each line of sections with metal dividers and wedge the whole tightly, so that no spaces are left, or the bees will fill them with propolis. This means more work at a very busy time, when orders are coming in, and there is little time to spend in scraping off propolis, which makes the sections look dirty and unsightly. When the crate is in position fill the space around it tightly with any available packing material, and finish the work off as in the case of frames, remembering that the sections cannot be made too cosy. I have often been asked why I recommend foundation with a drone base for shallow frames, and worker base for sections. As shallow frames are used for the purpose of producing extracted honey, it will be clearly seen, as the cell space is larger, the honey can escape much more easily than from smaller cells, while in the latter instance the sections have a better finish when the smaller worker cells are employed.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Perennials, Hardy Bulbs, Lilies, &c., at 12; Palms, Plants, &c., at 8; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY AND THURSDAY—

Clearance Sale of 50,000 Established Orchids, at Turnford Hall Nurseries, Broxbourne, Herts., by order of Messrs. T. Rochford & Sons, Ltd., by Protheroe & Morris, at 12.

THURSDAY—

1,800 Carnations and Greenhouse Plants, at Mid Kent Nurseries, West Wickham, by order of Mr. H. H. Berlandina, by Protheroe & Morris, at 12.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—51° 8'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 11 (6 p.m.): Max. 58°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 12 (10 a.m.): Bar. 29.6; Temp. 55°; Weather—Sunshine.

PROVINCES.—Wednesday, May 11; Max. 51° Cornwall; Min. 47° Scotland E.

King Edward VII.

DIED AT BUCKINGHAM PALACE, MAY 6, 1910.

“Peacemaker.”

Our Late King.

It is not our purpose to write a general tribute to the beloved memory of King Edward VII., whose excellent qualities so greatly endeared him to his people. But we may briefly acknowledge some of the many instances in which the late King gave evidence of his love for gardening and his personal regard for horticultural interests. At the time of the Coronation in 1902, we published a description of the Sandringham gardens, which were formed by King Edward whilst still Prince of Wales. After his accession King Edward afforded further proof of his love for gardening by thoroughly overhauling the gardens at Windsor, bringing them to a state worthy of their historic associations. Since that time the private gardens at Sandringham and the state gardens at Windsor have been maintained as model establishments.

In public life, the late King showed great sympathy with horticulture. It was he who expressed the hope, many years ago, that the Royal Horticultural Society would some day possess a home of its own in London, and our readers will remember that King Edward VII., accompanied by Queen Alexandra, publicly opened the hall in Vincent Square in 1904. On a recent occasion, when it was decided to hold an International horticultural exhibition in 1912, Sir Trevor Lawrence was able to announce that the King would be pleased to extend to the movement his royal patronage.

In this time of national grief every sympathy will be felt with Queen Alexandra, who has always been especially popular with gardeners. Her love of flowers

led her to make frequent visits to the Temple shows, and to the exhibitions of the National Rose Society.

The illustrations of Marlborough House, York Cottage, and Sandringham, which we publish in the present issue, have a special interest during this time of national mourning for the King. Sandringham was the King's private home, and it will still provide a home for Queen Alexandra, who has always taken a personal interest in the gardens. York Cottage and Marlborough House have been the residences of King George V. during his father's reign, but Marlborough House, which is illustrated in our supplement, will now become the London residence of Queen Alexandra.

It will be seen from notices printed in another column that several events appointed to take place during the next few weeks have either been cancelled or postponed. Included among these is the fortnightly meeting of the Royal Horticultural Society, which had been arranged for next Tuesday, and the Festival Dinner of the Royal Gardeners' Orphan Fund which was fixed for the 19th inst. This latter event will now take place on May 26.

Plant Tissues and Disease-Producing Microbes.

From time to time vegetables and fruits come under suspicion as the bearers of the germs of this or that human disease. There is in particular a widespread belief that vegetables grown on sewage farms may serve to disseminate pathogenic microbes.

Messrs. P. Remingler and O. Nouri, writing in *L'Union Pharm.* (51. 16. 1910) demonstrate that the suspicion is unfounded, and that the internal tissues of plants, even in the cases of plants grown in earth or water inoculated with the cholera vibrio or the typhoid bacillus remain absolutely uncontaminated by these disease-producing micro-organisms. According to a note published in a recent issue of the *Pharmaceutical Journal* Messrs. Remingler and Nouri found that, not only were the tissues of the stems and leaves free from disease-producing germs which they introduced into the soil, but so also were those of the root system. Tulips grown in water contaminated by pathogenic bacteria remained free altogether from them.

As, according to report, the American, in anticipation of importunate callers, writes over his desk, “I have troubles of my own,” so the plant indicates by this freedom from the ills that flesh is heir to that it has its own set of diseases.

It is a matter well worth further investigation: how the plant protects itself from invasion by such bacteria as those which induce typhoid. The cell-wall of the plant-cell is a frail barrier; the acid cell-sap is perhaps more efficacious, but it may scarcely be doubted that the plant-cell itself produces toxic substances which are potent enough to destroy any micro-organisms which, escaping the outposts—the cell-wall—obtain access to the living substance. If this be so, then there may be found more justification for the housewife's obsolete remedies of herbs and simples than the modern physician is willing to allow.

The fact that the inside of the plant is clean does not, of course, mean that the outside is not contaminated, and neither does it permit

of any relaxation of the precautions to be adopted before salads and uncooked fruit and vegetables from suspected sources are used for food.

POSTPONEMENT OF MEETINGS AND SHOWS.—

The Secretary of the Royal Horticultural Society writes us as follows:—Owing to the lamented death of our late King and Emperor, Edward VII., of happy memory, the fortnightly meeting and exhibition of the Royal Horticultural Society, fixed for May 17, will not be held. The meeting of the National Tulip Society for the same date is also abandoned, and the Perpetual-flowering Carnation Society's show entered for May 19 at the R.H.S. Hall is postponed until June 9. The Royal Horticultural Society's great spring show in the Inner Temple Gardens, Victoria Embankment, will be held as arranged and advertised. The show opens at noon on Tuesday, May 24. A private view for Fellows of the Society only is given from 7 a.m. to noon on Wednesday, May 25. Open to the public from 12 to 7 p.m.; and on Thursday, May 26, from 9 to 6.

—The meeting of the Linnean Society, which had been fixed for Wednesday, May 18, has been postponed to Wednesday, May 25.

—The annual dinner in aid of the Royal Gardeners' Orphan Fund, arranged to take place on May 19, has been postponed until Thursday, May 26, the third day of the Temple Show.

KING EDWARD MEMORIAL NUMBER.—We are asked to announce that next week's *Punch*, to be issued on the 18th inst., will be a special King Edward memorial number, and will consist of 40 pp. chiefly of illustrations gathered from the pages of *Punch*, from the late KING's birth in 1841 up to the date of his decease. This issue will be sold at the usual price.

BRUSSELS INTERNATIONAL EXHIBITION.—In this issue we publish illustrations, from photographs by Mr. VASEY, of some of the more prominent exhibits at the Brussels International Exhibition, and readers are referred to the report in our last issue for information upon the subjects now illustrated. Dr. A. B. RENDLE, who, with Mr. E. A. BOWLES, M.A., Chairman of the R.H.S. Scientific Committee, represented the Royal Horticultural Society at the Horticultural Congress in Brussels 10 days ago, is also present at the Botanical Congress now being held at the same place.

THE KEW GUILD.—We are requested to state that the annual general meeting of the Kew Guild will be held in the Gymnasium, near Kew Gardens Station, at 7.30 p.m. on Monday, May 23, and that a re-union will take place after the meeting in the large room at the Kew Gardens Hotel. It is hoped that a large number of old and present Kewites will attend.

MR. G. CASELTON.—Sympathy will be extended to Mr. CASELTON, the superintendent of the Crystal Palace Gardens, in the bereavement he has sustained in the death of his son GORDON, from pneumonia, at the age of 21 years.

PURCHASE OF LAND FOR SMALL HOLDINGS.

—The Cheshire County Council Small Holdings Committee were the largest purchasers of land, comprising part of the estate of Sir DELVES BROUGHTON, which was offered for sale on May 2, at Crewe. The purchase by the committee included, according to the *Times*, Batherton Hall Farm, 219 acres, for £9,200; Batherton Dairy Farm, 196 acres, for £10,800; two pasture fields for £50, and a small holding for £150. We may conclude that the Council, which has been active in establishing small holdings, is satisfied that the movement is susceptible of considerable development in the county.

THE GARDENERS' COMPANY.—A memorial has been presented to the City Corporation by the Gardeners' Company asking them to recognise the Company's ancient livery with an unlimited number conferred upon them by the Constitutions of 1606, or alternatively to grant them an increase of the livery, with, in either case, the recognition or grant of a higher precedence to that at present conceded to the Company.

HAMPTON COURT GARDENS.—Provided the weather is favourable, visitors to these popular

Pink Murillo, mixed Wallflowers, with Keizer Kroon Tulips, mixed Pansies, dotted with numerous *Cytisus præcox* and standards of red *Azalea mollis*, carpets of Bridal Wreath Viola, with Hyacinths and *Narcissus Campbrellii*, illustrate the wealth of spring flowers available at this season of the year. The long border which extends from the high road to the Palace is a mass of variously-coloured flowers, meriting the highest admiration. The margin is of double Arabis, which appears as an edging of snow; within this are Tulips innumerable in groups, as, indeed, is everything, even Japanese Maples,



FIG. 131.—KING EDWARD VII. AT THE OPENING CEREMONY AT THE ROYAL HORTICULTURAL HALL, JULY 22, 1904.

gardens on Bank Holiday will be able to enjoy a grand display of flowers. Never have these gardens, writes a correspondent, been more gay in spring than they are just now. The Hyacinths and mid-season Tulips are passing, but there is a great quantity of late-flowering and Darwin Tulips to succeed them. In the large beds which border the long promenade there are masses of yellow and crimson Polyanthus, dotted with diverse-coloured Tulips, also Arabis, Pink Myosotis, *Pyrus floribunda*, carpets of Daisies and *Aubrietia græca*. There are also masses of double Tulips *La Cardeur* and

Double Cherries, Azaleas, *Pyrus*, and other shrubs are in planted groups, whilst in the foreground Wallflowers, in several colours, *Doronicums*, Polyanthus, Auriculas, Narcissi, variously-coloured Forget-me-nots, *Dielytras*, Daisies, Violas, *Nemophilas*, *Saponarias*, *Primula Sieboldii*, Yellow Alyssum, White Iberis, and many other hardy flowers contribute to the brilliant if varied floral display. A wide public with many tastes has to be catered for, and the superintendent, Mr. MARLOW, may be congratulated on the result of his efforts to satisfy all visitors to these beautiful and historic gardens.

ORCHID AWARD BOOK.—We have received from the Secretary of the Royal Horticultural Society a copy of the new edition of the *List of Awards (Orchids)* given by the Society from 1859 to 1909, inclusive. It is a publication that may be recommended to everyone interested in Orchids. The records constitute a brief history of the progress of Orchid culture in the British Isles, each succeeding novelty of merit being enumerated, together with the Award it received, the exhibitor's name, and the date on which the plant was shown. The hybrids of the large genera are enumerated separately, and the parentage of each given where it is known. In the case of both species and hybrids the letter P is placed against each of the certificated plants, provided a painting has been retained in the Society's collection in accordance with the rule that Awards are given subject to a flower being supplied to the Society's artist for a drawing to be made. Over 1,600 of these drawings of certificated plants have now been accumulated, and the collection is a valuable means of reference. The book is singularly free from inaccuracies, and the chairman, the honorary secretary, and sub-committee of the Orchid Committee, who are mainly responsible, are entitled to congratulations on the success of their efforts. The book, which is interleaved, is well printed by Messrs. SPOTTISWOODE & Co.

TROPICAL AGRICULTURE AND COLONIAL DEVELOPMENT.

—An International Association of Colonial Agriculture was founded in 1905 at the close of the first International Congress of Tropical Agriculture, held in Paris of that year. This association has arranged to hold a second International Congress at Brussels on May 20 to 23. A British committee, which includes the principal agricultural officers in the Colonies, has been formed to arrange for the contribution of papers. The president of this committee is Professor W. R. DUNSTAN, F.R.S., Director of the Imperial Institute, and the secretary, Dr. T. A. HENRY. The following papers have been promised to the British committee:—W. L. BALLS (1) "The Application of Mendel's Law to Cotton Breeding;" (2) "Some Causes Affecting the Egyptian Cotton Crop;" G. C. DUDGEON, "The Cottons in Indigenous Cultivation in British West Africa;" A. E. HUMPHRIES, "Wheat Production in Relation to the Requirements of the United Kingdom;" F. B. GUTHRIE (1) "Work Done in New South Wales in Connection with the Improvement and Testing of Wheats," (2) "The Work of the late W. J. FARRER on the Improvement of Wheat in New South Wales;" I. B. POLE-EVANS, "Problems Connected with Maize-growing in South Africa;" J. B. CARRUTHERS (1) "New Methods of Tapping Castilleja," (2) "Cover Plants as a Substitute for Weeding in Rubber, Cacao, and other Cultivations;" G. M. ODLUM, "Tobacco Culture in South Africa;" Mr. EASTERBY, "Cultivation and Varieties of Sugar-cane at the Sugar-cane Experiment Station, Mackay, Queensland;" Professor P. CARMODY (1) "Preparation of Rubber," (2) "Preparation of Paper from Megass," (3) "Methods of Manuring, Suitable for Natives;" Mr. BENSON, "Manuring of Tropical Fruits;" Dr. S. S. PICKLES, "The Aromatic Grass Oils;" R. N. LYNE, "Causes Contributing to the Success of the Zanzibar Clove Industry;" W. MACDONALD, "Dry-Farming and Land Settlement in South Africa;" J. H. BARNES, "The Alkali Lands of Northern India;" E. M. JARVIS, "Economic Zoology in African Colonies;" W. GILL, "The Introduction of *Pinus insignis* into South Australia, and its Successful Utilisation;" F. W. BARWICK, "African Wild Silks;" G. C. DUDGEON, "Some Important Insect Pests in British West Africa;" C. C. GOWDEY, "Insects

of Economic Importance in Uganda." The International Association of Colonial Agriculture has also arranged for the collection in tropical countries of information on a number of subjects of special interest, and general reports on these will be presented to the congress, as well as reports by experts in each country concerned. All communications regarding the congress should be sent to the secretary of the British Committee, Imperial Institute, London, S.W.

DESTRUCTION OF EEL-WORMS.—An account is given in the *Weekly Florists' Review* of the experiments carried out by Mr. G. E. STONE, of the Massachusetts Experiment Station, in the destruction of eel-worms in soil. Dr. STONE concludes from his experiments that lime, which is recommended frequently for this purpose, is without destructive effect on eel-worms. He also concludes that the use of formaline for this purpose is to be deprecated, for, unless used in quantities sufficient to damage the plants, it fails to kill the pest, nor does it penetrate the thick, resistant covering of the eggs. The cheapest and best method for destroying eel-worms in potting soil is that of heat-sterilisation. In applying this method, the soil should be raised to a temperature of at least 180° F. by driving steam through perforated pipes running in the soil. Freezing the soil results in the extermination of the eel-worms, and advantage may be taken of this fact to get rid of the pests from soil which is required for potting purposes. Soil exposed to hard weather during the winter may be expected to be rendered free from eel-worms. When exposing the soil to frost, it is best to mix it thoroughly with quicklime in order to dry it, and, of course, to prevent its becoming wetted by rain. Another method of clearing the soil is to use it for the cultivation of a catch crop, for example, Mustard or Rape. The eel-worms enter the roots of the plants, and pass into a resting (encysted) condition. Then, by pulling up the plants and burning them, the pest is "weeded out" of the soil. Mr. STONE finds that, in practice, two or three catch crops are better than one for this purpose. Finally, it was found at Massachusetts that, in some cases, flooding the soil proved a simple and successful mode of destroying the eel-worms therein.

PUBLICATIONS RECEIVED.—*The Estate Magazine*. Bath and West Agricultural Show issue. (Printed for the proprietors, The Country Gentlemen's Association, Ltd.)—*The Country Gentlemen's Estate Book, 1910*. Edited by Wm. Broomhall. (London: The Country Gentlemen's Association, Ltd.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PRIMULA "GENERAL STUART."—Many years ago the late Dr. Charles Stuart, of Chirnside, Berwickshire, raised a fine variety of *Primula viscosa*, which he named The General. Is this the same as the plant which received an Award of Merit at the meeting of the Royal Horticultural Society on April 19 under the name of "General Stuart"? R. Lindsay, Kaim's Lodge, Murrayfield, Midlothian.

PHLOX PILOSA.—Mr. S. Arnott, in his notes on the spring-flowering Phloxes, p. 275, states, in the *Kew Handlist*, "P. pilosa is referred to P. amœna." He must have overlooked the fact that the name P. pilosa occurs twice in the *Handlist*. P. pilosa, L., the true species, is printed in ordinary type, and P. pilosa, Walt., which is a synonym of P. amœna, in italics. The two species are distinct in habit, P. pilosa being erect in growth, while P. amœna is more or less procumbent. W. Irving, Kew Gardens.

THE INTERNATIONAL EXHIBITION, 1912.—We understand that the proposal at present is to hold this exhibition in the month of May. In the interests of a great many plants, and of those who are engaged in their cultivation, we would like to suggest that the time has come when a big show should take place in the month of June. We have had Temple shows in May for a long time, and Holland House shows in July, but the Temple show is always two or three weeks too early for even a minority of border plants; and in July many are over. After all, it is the hardy garden that gives so much pleasure in England, and it should be encouraged more, instead of less, than tender exotics. Consideration is due to those who form the great majority of English flower lovers, and we hope that our suggestion will receive support. *Kelway & Son, Langport, Somerset.*

—One of the most helpful suggestions I have seen in connection with the International Exhibition is that made in your article on "The International Congress of Horticulture" (see p. 289), namely, that those responsible for the organisation of the international of 1912 should set about soon to arrange a series of conferences to be held at or about the same time as the exhibition. Horticulturists will be attracted to London from all parts of the world, and in some respects the work of such conferences could be made more permanent than the influence of the exhibition itself. Conferences ranging from the abstruse subject of Genetics down to the humble florists' flowers would add interest and strength to any programme of events which may be arranged in connection with the international gathering. *W. Cuthbertson, Edinburgh.*

THE SEASON.—We should do well, when reading Mr. Fitzherbert's very interesting note (see p. 295) about the mildness of the South Devonian winter, to remember that he writes from what I should imagine was one of the very warmest spots in the whole country. Upon the hills of Torquay there is a very different tale to tell. During the three winter months my thermometer (on the gravel path) registered frost on 31 out of the 90 days, the maximum being 13° on the night of December 19. There were 11° on the night of January 21, and 10° on those of January 24 and 26. The frosts continued in the same proportion—33°—but with less severity during the months of March and April. Frost was registered here upon 21 out of the 61 nights, the sharpest being 8° upon the nights of March 31 and April 1. Yesterday morning my lawn was grey with hail, and last night there were 4° of frost. It does not seem as if we had quite finished with winter yet. Happily, things have been kept fairly well back, and the damage done to gardens has been, as Mr. Fitzherbert remarks, mainly due to the severe gales. *John Edwards-Moss, Roby Hall, Torquay, May 9.*

COLOURING OF AMPELOPSIS VEITCHII AND RHUS TOXICODENDRON.—I have always been deeply interested in the phenomenon of the autumn colouring of leaves, and from observation have generally concluded that the aspect materially influenced this. I was somewhat surprised to read Mr. Molyneux's statement on p. 250, that "Ampelopsis Veitchii and Rhus Toxicodendron have as much brilliancy when growing in a north or westerly site as in a southern one." The last-named subject is one of the most magnificent of our autumn-colouring shrubs, but only in exposed positions will the crimson tints deepen into that lustrous violet which, in conjunction with bronze and gold developed at the same time and in the same leaves, renders it so conspicuous among other shrubs. The season of 1909 was unfavourable for autumn colouring, but two specimens of this Rhus at Walmsgate, planted in fully-exposed positions, exhibited a moderate display. Another group planted in a north-west aspect developed only a pale yellow in the ripening leaves, and these results are in perfect accord with those noted in previous years. The most liberally-planted area of Ampelopsis Veitchii known to me is the seaport town of Ayr, on the south-west coast of Scotland. Probably 75 per cent. of the private houses situated on either side of the Racecourse Road—the main residential thoroughfare—have this subject as a wall covering.

The brightest colours obtain on the south and south-west aspects. A single plant frequently covers the front of the house and one of the gables; on the latter the leaf colouring never attains the same degree of brilliancy as is developed on the more favoured aspect. The eastern aspect is less favourable; generally the bronze-green is never entirely eliminated, while lemon and orange shades are more in evidence. Only under exceptional conditions does the leaf colouring on northern aspects exceed a lively purple, passing to shades of red, and it is of common occurrence to find the old Ampelopsis quinquefolia substituted in this position, because its autumn tints are more reliable. I recently noted in a London suburb a plant of Ampelopsis Veitchii clothing the naked stem of an aged specimen of *Araucaria imbricata*, forming a vertical column, perfect in symmetry and beauty. *Thomas Smith, Walmsgate Gardens, Louth.*

SPADE WORK.—The note by Mr. Thomas Canning in the *Journal* of the Royal Horticultural Society for March, and referred in the *Gardeners' Chronicle*, April 16, p. 249, calls for investigation and explanation. To all who are anxious to see a greater number find employment on the land, and who are fully aware that spade or fork culture, together with some method of intensive cropping, is the need of the present day, a competition similar to the one suggested must appeal with considerable force. But the figures given are so astounding to experienced persons, that it is difficult to imagine they can have emanated from any other than a theorist unacquainted with the true nature of soils and the necessary energy required to turn it over to advantage. If it were possible for one man to turn over 110 square yards, which is approximate to 3½ square rods per hour. I venture to think we should not find allotment and small holders as we do to-day ploughing in preference to digging, solely on the ground of cost, yet knowing full well that the advantage of the latter over the former would be considerable were it not for the additional outlay with risky crops. Digging half-done, or, to use an everyday phrase, spuddled over, is very little better than shallow ploughing, so that mere speed in a competition is not desirable, if the object is to convince those anxious to make the most of small areas. of the additional benefits to be desired from following this course. Further, the amount of money it would be possible for one man to earn at the speed suggested, proves at a glance the utter impossibility of accomplishing the task. For instance, experience teaches that, proportionately with the class of soil to be dealt with, the rate of pay for this work ranges from 4d. to 1s. per rod, and if it were possible for a man nearing his 80th year to perform one hour's task at the rate suggested, I see no reason to doubt the possibility of a man at middle age continuing it daily eight hours per day. Hard work, I admit, but excellent pay if we take the minimum figure, whilst the maximum should induce numbers to take it up. That the soil and its environments should be put forward in every legitimate way as a means of relieving unemployment and congested areas, is admitted on every hand, but let us be quite certain that in our enthusiasm to adjust matters nothing is said or done which is likely to mislead the cultivator. *C. Martin, County Horticultural Instructor, Isle of Wight.*

LAUREL LEAVES AS AN INSECTICIDE.—I can testify as to the efficacy of bruised Laurel leaves as an insecticide; also regarding its danger if applied to, for instance, Cinerarias, or if the plants are subjected too long to the fumes. I have a distinct recollection of having, some 50 years ago, fumigated by means of Laurel leaves a cold frame full of plants infested with green-fly, and the result was considerable injury to the foliage. I attributed the damage to keeping the frame closed during the night, and without taking the precaution to remove the few handfuls of Laurel leaves. I also tried the remedy in a small pit containing Melons infested with red spider. After one or two hours' application the red spider, to my surprise, was either paralyzed or dead, hence I was encouraged to continue the antidote for a similar period, and, subsequently, found the remainder destroyed. The Laurel leaves were at once removed, and a little fresh air admitted. *William Gardiner, Harborne, Birmingham.*



FIG. 132.—SANDRINGHAM HOUSE, NORFOLK.

EXHIBITION VEGETABLE CULTURE.—I am afraid that *Practical*, in his article on p. 296, shows himself to be out of sympathy with his employer in respect to vegetable culture. It happens all too often that there is not enough interest taken in the cultivation of good vegetables in private gardens, and, in some instances, it is due to the fact that the head gardener himself does not give this department sufficient personal attention. The journeyman in the plant and fruit houses does not even have the name of vegetable mentioned to him. How can one expect such men to make good practical gardeners when all they know of vegetable and other outdoor crops is obtained by reading good books? I write from experience, for I was in the same condition myself at one period. The letter by *Practical* tends to represent that the culture of vegetables for exhibition entails an enormous expense. I would like the readers of this journal to know that this is not the case. Consider the cottagers' exhibits at many of the leading shows; their vegetables are equal to many staged from private gardens, and I ask if cottagers, with their weekly wage, can afford any expensive outlay for the production of these exhibits? Surely, if they can obtain such vegetables from their meagre experience, a practical gardener should have no difficulty in obtaining equal results. In the culture of Leeks, the glass tubes and miniature boxes mentioned by *Practical* are not essential; in fact, I have never heard of anything of the kind being used for the production of Leeks. I once heard that one of our leading vegetable exhibitors experimented with ordinary drain pipes for this particular vegetable, but without success. If Peas are sown 3 inches apart, as advocated by *Practical*, surely he ought to get Peas good enough for exhibition. I doubt if either Mr. Gibson or Mr. Beckett allow their Peas any more room than this. The growing of vegetables for exhibition is not only educative to the young gardener, but new ideas can be gained by experimenting, and these can be put into practice in the culture of ordinary crops. At one time, Carrots could not be grown in these gardens, they were always destroyed with wireworms or some other trouble, but after applying experience gained in experimental culture, I am able to grow this crop satisfactorily, and I gained a 1st prize for Carrots drawn from the maincrop bed, and for Beetroots, against 10 exhibitors in each case. Cauliflowers, Runner and French Beans, Potatos, Turnips and many other crops do not necessarily need special treatment; they can be produced in exhibition form by good ordinary culture. A. Gooding, Earham House Gardens, Chichester.

—The arguments of *Practical* might be used for the abolition of exhibitions altogether! If there is to be no superiority in culture

or in anything else, as a result of enthusiasm, skill and well-directed energy, the world had better swing back into the commonplace at once. Besides an argument for the abolition of exhibitions, I see in *Practical's* reasoning a defence of the lazy go-as-you-please gardener. The keen exhibitor is always a keen worker, much of the attention required by special things being given after hours. I am quite sure no reasonable employer expects his gardener to produce as ordinary crops specimen vegetables such as those shown by Mr. Beckett and Mr. Gibson, but every employer has a right to expect good crops. Special reference is made by *Practical* to Onions, Leeks, Celery, Brussels Sprouts, Carrots and Parsnips. I maintain that if the ground is thoroughly prepared—not specially prepared—at the proper time for these crops, specimens will be obtained not inferior, but probably better suited for cooking, than exhibition produce. Good growers, not exhibition men, invariably sow Leeks and Onions in heat

and plant them out in April. By this method, if planted on thoroughly-prepared ground, all the specimens should measure from 4 to 6 inches in diameter, and, as for Leeks, if planted in proper trenches and earthed-up, they will develop to 6 to 8 inches long and approaching 2 inches in diameter. As for Parsnips, if the ground is trenched 2 feet deep and well pulverised, with most of the manure kept at the bottom, the results will be eminently satisfactory. In regard to Peas, thin sowings will give pods almost up to exhibition standard. Let me say a word as to varieties. Crops depend largely on the varieties selected, and still more largely on the carefulness with which these varieties are selected by the seedsman. I remember the late Mons. Vilmorin asking me at one of the R.H.S. vegetable shows if I did not prefer, as he did, the small, firm Brussels Sprouts to the large ones like miniature Cabbages. I agreed, but I said I did not want stalks with Sprouts like marbles in size and 3 inches apart! With a



FIG. 133.—THE PANSY GARDEN AT SANDRINGHAM.

very few exceptions, the best varieties or strains of vegetables for show work are the best for general use, and to the selection of exhibition strains is due much of the improvement in vegetables during the last half-century. Is not the work of seedsmen like Sutton, Veitch, Carter and Dobbie fairly conclusive proof of this? *Exhibitor.*

—It may be pointed out that when products are grown for exhibition, whether plants, flowers or fruits, the object should be to develop in them the highest possible quality. Can a cultivator who has soil which will only produce imperfect roots, for instance, be blamed if he adopts measures to so ameliorate the soil as to enable it to produce perfect roots? It is curious criticism which censures a grower for endeavouring to surmount the defects of soil or natural conditions. But if special effort has to be made to produce a few vegetables of high-class excellence, there are many crops which need no such special treatment, for instance, Cauliflowers, Potatoes, Beans, Tomatoes, Cucumbers, Marrows, Turnips and some other popular exhibition products need only ordinary culture. The man who reduces the bunches of Grapes on his vines, or the Peaches or Plums, Apples or Pears on his trees, or even Melons on his plants, in order that those which are left may develop the more perfectly, is equally liable to such criticism as *Practical* metes out to vegetable growers. Exhibitions are intended to create emulation, and for the display of produce at its very best. When such objects are considered worthless, exhibitions will be things of the past. *A. D.*

THE YOUNG NATURALISTS' LEAGUE.—Will you allow me to make known the existence of this league through the columns of your paper? The league was founded 12 months ago, and on its first birthday celebrated a membership of over 3,000. In view of the interest now taken in Nature study in our schools, and the recognition accorded to it by education authorities, I am desirous of making the aims and objects of the league more widely known, and its work more useful and far-reaching. The time has now arrived for the appointment of branch honorary secretaries—especially schoolmasters and mistresses and those having control of boys and girls, but membership is not restricted to school children, as we welcome anyone who is desirous of joining or supporting the society in any way. I shall be glad to hear from anyone willing to help me in the promotion of this league, and I will forward full particulars concerning same on application. *W. Percival Westell, Chester House, Letchworth, May 9, 1910.*

PROTECTING PEACH BLOSSOM.—*Peach Grower*, in reference to this subject, says (p. 284): "Mr. Ward's letter does not help much to solve the question as to whether as good crops of Peaches can be obtained from unprotected as protected trees, provided both are planted against south walls and receive the same care and cultural skill in their growth." I do not know what stronger evidence *Peach Grower* requires than that recorded by me in the issue of the *Gardeners' Chronicle* for April 16, p. 252, namely, "That the trees which were protected with canvas while in flower in the manner described in this journal for February 26 last, bore heavy crops of fruit, the fruit having set so thickly as to necessitate severe thinning annually. While the two or three isolated Peach trees growing on Plum walls, which received no protection while in flower bore light crops of fruits most years, and some years they bore very few fruits indeed." Does not *Peach Grower* consider the results indicated above sufficient to "solve the question as to whether as good crops of Peaches can be obtained from unprotected as from protected trees"? This is conclusive evidence in favour of protecting Peach and Nectarine trees while in flower, evidence which *Peach Grower* will endorse regardless of the extent of wall furnished being 10 yards or 250 yards in length, as length of wall has nothing whatever to do with the question. I may remind *Peach Grower* that the three isolated Peach trees growing on Plum walls that received no protection when in flower received the same cultural attention as did the protected trees. Two of the non-protected trees were growing against a wall having a south-east aspect and one against a wall facing south-west. Two trees of the Violette Hâtive Peach planted

against a wall having a due east aspect, and which were duly protected when in flower, bore good crops of fruit every year; the fruit ripening ten days or a fortnight later, according to weather conditions, than the same varieties did growing against walls having south or south-west aspects. In conclusion, I may add that as soon as the training of the trees was completed early in February, and the protecting machinery had been fixed, the surface of the Peach borders was pricked over with a digging fork to the extent of about 5 feet every way from the stems of the individual trees, and a surface-dressing of half-rotten stable manure was laid on to the thickness of 4 inches and then well-watered, the applications of water being repeated several times during the season of growth, in addition to the trees being kept well-syringed overhead early in the afternoon from the time they came into leaf until the fruit had been gathered. *H. W. W.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MAY 3.—*Present:* Sir John T. D. Llewelyn, V.M.H. (in the Chair); Dr. A. Henry, Messrs. A. Worsley, H. J. Elwes, L. Crawshaw, J. T. Bennett-Poe, G. Gordon, J. Fraser, G. Massee, and F. J. Chittenden (hon. sec.).

The late Mr. G. S. Saunders.—A letter was read from Miss Saunders thanking the Committee for the vote of condolence passed by the Committee at the last meeting.

Seedlings of Saxifraga Rhei.—Mr. J. FRASER showed and commented upon a number of seedling forms of *Saxifraga Rhei*, raised by Mr. C. Read, of Ealing. He thought it likely that *Saxifraga Rhei* was a form derived from *S. muscoides*, and that it was in a state of mutation. It had given seedlings of a variety of forms which had received different names, including *S. Guildford Seedling*, forms of *S. decipiens* and so on. *S. Rhei* is found in a wild state in Transylvania, and members of the Committee considered it possible that the great extent of variation seen in the seedlings was due to segregation of hybrid characters.

Polyanthus, &c.—The Rev. ROLAND UPCHER showed some varieties of *Polyanthus* which he had raised in his garden at Halesworth. They departed considerably from the florists' type of *Polyanthus* both in flower and leaf, but, in the opinion of most of the Committee, they showed no evidence of crossing with other species of *Primula*, pollen of which had been placed upon the stigmas of the parents. Mr. UPCHER said no precautions had been taken to prevent the admission of foreign pollen. Mr. BARTLETT, of Shooter's Hill, sent a semi-double flower of a yellow Auricula. Mr. JACOB showed a series of coloured Cowslip flowers.

Malformed Orchid.—Mr. CRAWSHAY showed an inflorescence of the natural hybrid *Odontoglossum* × *Leeanum*, every flower malformed, all the petals, except the lip, being absent.

NATIONAL AURICULA AND PRIMULA.

(MIDLAND SECTION.)

MAY 4, 5.—The annual exhibition of this society, held at the Botanical Gardens, Birmingham, on the above dates was a pronounced success, there being more exhibitors and entries than in any year since the establishment of the society 11 years ago. There was a good attendance of visitors on the first day of the show. Exhibits, not for competition, were received from Mr. W. A. WATTS, St. Asaph (*Polyanthuses* and *Daffodils*); Mr. H. N. ELLISON, West Bromwich (*Ferns*); Mr. C. WINN, Selly Hill, Birmingham (*Schizanthuses* and *Primulas*); and Mr. A. R. BROWN, King's Norton (pot *Roses*). A Silver Medal was awarded to each of the above-named exhibitors.

SHOW AURICULAS.

In the principal class arranged for eight varieties, dissimilar, there were five entries—an increase of three over last year. The 1st prize was won by Mr. W. H. PARTON, Hollywcod, Birmingham (gr. Mr. W. Carpenter), with un-

usually well-grown plants of Richard Headley, George Rudd, Mikado, Mrs. Henwood, Shirley Hibberd, Harrison Weir, George Lightbody and Favourite. 2nd, Mr. C. WINN, Selly Hill, Birmingham (gr. Mr. T. Sheppard), whose exhibit included excellent specimens of *Eucharis*, Mikado, Henry Wilson and Mrs. Henwood; 3rd, Mr. W. N. SHIPMAN, Altrincham.

In a class for six show varieties, dissimilar, there were four contestants, and Mr. W. H. PARTON again won the premier position with superb examples of George Lightbody, Mrs. Potts, Mrs. Henwood, Acme, Shirley Hibberd and Mikado; 2nd, Mr. W. N. SHIPMAN, Altrincham; 3rd, Mr. C. WINN, Birmingham.

In the class for four show varieties, dissimilar, Mr. F. SIMONITE, Sheffield, was placed 1st. He had well-flowered, sturdy examples of George Lightbody, Molly Shipman, Shirley Hibberd and a deep maroon, unnamed seedling; 2nd, Mr. FRANCIS GLAZEBROOK, Dudley, whose best varieties were Mrs. Henwood and Vesta; 3rd, Mr. RICHARD HOLDING, Bournville.

The best pair of show varieties, dissimilar, came from Mr. SIMONITE, Sheffield. He had splendid flowers of Ruby and Mrs. Henwood; 2nd, Mr. J. C. DRYDEN, Northumberland; 3rd, Mr. H. N. MILLER, Perry Barr.

SINGLE SPECIMENS.

The best single specimen of a green-edged variety was Henry Wilson, shown by Mr. F. SIMONITE; the best grey-edged variety, George Lightbody, shown by Mr. C. WINN; the best white-edged variety, *Eucharis*, shown by Mr. C. WINN; and the best Self Auricula, Harrison Weir shown by Mr. C. WINN.

ALPINE AURICULAS.

There were seven competitors in the class for eight Alpine Auriculas, dissimilar. Mr. C. WINN was awarded the 1st prize; he had handsome specimens of Mrs. Danks, Majestic, Unexpected, Thetis, J. F. Kew, Golden Acme, Miss Baker and Dorothy Westmacott; 2nd, Mr. W. N. SHIPMAN, whose plants of Duke of York, Exquisite, Thetis, Argus and Mrs. James Douglas were very fine.

For six Alpine varieties, dissimilar, Mr. RICHARD HOLDING, Bournville, was placed 1st, having Unexpected, J. F. Kew, Mary, Majestic, Duke of York and Miss Baker; 2nd, Mr. C. WINN, with well-flowered examples of Richard Dean, Edith Winn, Miss Baker, Mrs. Danks, Majestic and Thetis.

Eight exhibits were made in the class for four Alpine varieties, dissimilar. Mr. A. LAWTON, Birmingham, won the 1st prize with beautifully clean specimens of Dean Hole, Argus, J. F. Kew and Thetis; 2nd, Mr. E. DANKS, Handsworth.

The best pair of Alpine varieties, dissimilar, came from the last-named exhibitor, who showed specimens of Mrs. Danks and Modesty in first-rate condition.

The best single plant possessing a gold centre came from Mr. R. HOLDING. He showed a new variety, with deep crimson flowers named Miss Violet Vanbrugh. Mrs. James Douglas was adjudged the best light-centred variety. Shown by Mr. C. WINN. There were 33 entries in this class, and some exceptionally fine flowers were exhibited. Mr. R. HOLDING had the most perfectly-shaded or only slightly-shaded variety in Unexpected.

SPECIAL MEDALS.

The Silver and Bronze Medals offered by the Birmingham Botanical and Horticultural Society to the exhibitors gaining the greatest number of points in the open classes were awarded as follows:—

Silver Medal to Mr. C. WINN.

Bronze Medal to Mr. W. H. PARTON.

The Silver Medal offered to the exhibitor gaining the greatest number of points in the local classes was won by Mr. W. H. PARTON, and the Brookes' Silver Medal by Mr. C. WINN.

PREMIER BLOOMS.

The premier show Auricula was Henry Wilson (green-edged), shown by Mr. F. SIMONITE, Sheffield; the premier Alpine, Mrs. Martin Smith, shown by Mr. W. H. PARTON, and the premier seedling Alpine, Miss Violet Vanbrugh, shown by Mr. RICHARD HOLDING.



FIG. 134.—YORK COTTAGE, SANDRINGHAM.

DUTCH BULB GROWERS'. EXHIBITION AT HAARLEM.

MAY 4, 5.—The third temporary show in connection with the Jubilee exhibition of the General Dutch Bulb Growers' Association, at Haarlem, took place on the above dates. The Jurors on this occasion, who had not previously visited the exhibition, were much charmed by the beautiful display of flowering bulbs in the open garden. The association are most fortunate in having such an ideal place for holding their show. The Haarlem woods supplied the most suitable setting for enhancing the effect of the bulbs, but, having said this much, it must be admitted that those responsible for the arrangements are entitled to congratulation for having made the most of the natural advantages the site offered.

Immediately on entering, the visitor is impressed with the essentially Dutch character of the scene, but the groups of beds, many of them formal in themselves, are so arranged that the general effects are at once natural and satisfying.

The second special show, on April 15, was the largest of the four events arranged to take place during the holding of the Jubilee exhibition, and those who attended that show were privileged to see a splendid display of Hyacinths which then furnished the beds. At the third show most of the Hyacinths had passed out of flower, but in place of these all the mid-season varieties of Tulips were in full bloom, and some of the earlier ones lingered in flower with them, whilst the Darwin and other late-flowering kinds may be expected to be in bloom when the fourth show takes place. It is unlikely that those who saw the Haarlem Tulips at their best will ever forget the brilliant colours they afforded.

It is somewhat difficult to convey to the reader an adequate idea of the extraordinary care and cultural skill that have been brought to bear upon the plants. Notwithstanding the great number of bulbs required to furnish the beds, all these bulbs were grown in boxes, and the boxes were plunged just sufficiently deep to hide them from view. It appeared as if every bulb selected for a particular bed had been chosen because its strength was exactly equal to all the rest. Not one had failed in any way, and in nearly all instances the flowers were of the same size in a bed, and they were produced at the same height. This goes to show that the bulbs had been most carefully selected by specialists, but further evidence of the extreme care which had been taken was found in a very large bed of Tulips, where all the 2,000 bulbs had been so placed that the leaves opened in the same direction; that is, in expanding, they followed the line of the row, and none of the leaves crossed the space intervening between the rows.

It has been already stated in these columns that, in order to save the Dutch Bulb Growers' Association any unnecessary risk, a guarantee fund was established for the purposes of the exhibition. It is satisfactory to note that the guarantors will not be called upon to make good their promises. We were informed whilst at Haarlem that the receipts of the exhibition have already equalled the expenditure, and that the committee is now working for a surplus.

The Dutch Bulb Growers' Association is in similar circumstances to the Royal Horticultural Society before it had its own hall in Vincent Square. Therefore, its chief desire at the present time is to build a hall in Haarlem and to associate the hall with a memorial to the late J. H. Krelage, whose efforts for the furtherance of the interests of the bulb growers will be remembered for many years to come. The association has a sum of money already available for such an object as we have described, and it is hoped that the surplus from the Jubilee exhibition will be sufficient, when added to the former sum, to enable a start to be made in the matter. Several British visitors to Haarlem during the present season have promised subscriptions in order to help the Dutch Society to obtain the fulfilment of its desires. The assistance so willingly given has been gratefully accepted, and further donations that may be sent by bulb lovers on this side of the Channel will be equally acceptable.

With this report we publish the portrait of Mr. E. H. Krelage, President of the Bulb Growers' Association, the head of the firm of Messrs. E. H. Krelage & Son. Mr. Krelage and

Mr. Van Waverin, whose portrait was printed in these pages three weeks ago, have borne the chief responsibility and work connected with the Jubilee exhibition.

AT THE THIRD SPECIAL SHOW.

The Jurors assembled on the morning of the 4th inst., and received addresses of welcome from Mr. E. H. Krelage, on behalf of the Association. After the judging was completed, the Jurors were entertained at a luncheon, over which Mr. Krelage presided, and in the evening at a banquet at the Hotel Funckler. The English visitors were Messrs. R. Hooper Pearson, W. Watson, and H. G. Cove.

NEW TULIPS.

Awards of Merit were made to the following varieties of Tulips submitted to the judges for award:—

TULIPS IN THE EXHIBITION GROUNDS.

The following varieties were noted in the general exhibition as being particularly attractive for bedding purposes:—

Queen of the Whites, an excellent bedding Tulip, lasting a long time in flower—the only possible criticism is that the segments are too much pointed; Jenny, a brilliant carmine rose-coloured flower with white feather in the centre of the outer segments; Calypso, very pale yellow; Couleur cardinal, rosy purple with brilliant scarlet showing between the segments as the flower opens, one of the finest Tulips in the collection; Enchantress; Mon trésor, rich yellow; Pink Beauty, flowers pink with white margin; President Lincoln, purplish rose; Queen of the Violets; Cerise Gris-de-lin, purplish rose, and pale buff; Leopold II., a shade of Apricot yellow; King of Holland, an intense crimson-coloured



MR. E. H. KRELAGE, PRESIDENT OF THE DUTCH BULB GROWERS' ASSOCIATION.

Alice Roosevelt.—This variety is a pink coloured sport from Queen of the Netherlands. A small bed was planted with bulbs in the out-of-door exhibition, and its effect was charming. It is unlikely, however, that this variety will be in commerce until several years have elapsed.

General De Wet.—This flower is of the same type as Prince of Austria, the colour being merely of another shade. An excellent novelty.

Louis Pasteur.—In this flower we have a variety resembling Enchantress, which was one of the most delightful flowers in the exhibition beds. Louis Pasteur is scarcely so red as Enchantress, being more carmine.

Princess Juliana.—This new flower is coloured rose and palest buff approaching to white. The rose colour appears as a kind of feather on the margin of each segment.

flower with yellow margins, the segments are scarcely so substantial as is desirable.

ORCHIDS.

Orchids were shown by three exhibitors. The largest and best group was from the private collection of G. H. MULLER, Aberken, The Hague. It comprised about a hundred plants, tastefully arranged and including *Odontoglossums*, *Cattleyas*, *Dendrobiums*, *Lycastes*, *Phalenopsis* and *Masdevallias*. The Stanley Cup and a Gold Medal were awarded to this group. The 2nd prize was won by VAN NEDERHASSELT, Aerdenhout, with a pretty collection of plants. The third group was from E. PRAET, nurseryman, Mont St. Amand. It would be unfair to make comparison between the efforts of Holland in Orchid-growing and those of England. We prefer to state that the few growers in that country may

be congratulated on the progress made, as revealed by the Orchids at the Haarlem Show.

MISCELLANEOUS.

The Gerberas of M. ADNET were a beautiful exhibit and worthy of the Gold Medal awarded to them. The Dutch nurserymen do not appear to have realised the value of the Barberton Daisy, although, unless we are greatly mistaken, they would find it as useful and as manageable as any of the many Cape plants which they grow so successfully.

Messrs. VAN TUBERGEN showed their hybrid Hymenocallis, which they call Ismene Sulphur Queen. It is the result of crossing *H. Amancaes* and *H. calathina*, the two best of the Peruvian Daffodils. We saw also what appeared to be a hybrid between *Phyllocactus* and *Epiphyllum*, but the plants were only in bud. Cactus fanciers will be delighted to learn if these two genera have really been hybridised.

The new race of bulbous Irises sent out by Messrs. VAN TUBERGEN and figured recently in our pages was well shown. It is said to be the result of crossing *I. lusitanica*, *I. filifolia* and *I. tingitana*, but the flowers are very similar to the best of the Spanish Irises.

Messrs. E. H. KRELAGE & SONS showed a very interesting exhibit of seedling varieties of Daffodils, including many that gave promise of becoming valuable sorts.

D. BAARDESA, Aalsmeer, a most successful grower of *Begonia Gloire de Lorraine*, showed plants which were perfect balls of flower. To obtain such specimens in May requires more than ordinary skill. We were informed that, to get the plants to flower so late, they are cut back hard just before they come into flower. Roses are well grown in Holland. On the whole, the exhibits in the pavilions were not quite up to international form, nor did they equal those of the previous show, held a fortnight earlier.

LINNEAN SOCIETY.

MAY 5.—A meeting was held on May 5, when Mr. E. M. Holmes exhibited specimens of a rare British lichen, *Parmelia rugosa* var. *concentrica*, Cromb., from the chalk hills between Eastbourne and Seaford, which had previously only been recorded from Melbury Hill, near Shaftesbury, in Dorset, where it was noticed in 1856 by Sir W. C. Trevelyan. This lichen grows in a concentric manner, forming rounded nodules 1 to 2 inches in diameter, and is apparently formed at first on pebbles, but becoming detached and blown about by strong winds ultimately forms more or less spherical growths.

He also exhibited specimens of the preserved fruits of a large variety of the Jujube, *Zizyphus Jujuba*, which is cultivated in China as a desert sweetmeat, and is known by the name of "Mei-tsao," or honey-date. The fruits are preserved by boiling in honey, and are then pressed flat and dried, and by mechanical means are given a striated appearance, having longitudinal lines from base to apex. The fruit has not as yet been imported into this country. It was received from Mr. McDougall, of Swatow.

Mr. Holmes also directed attention to a volume of water-colour and pencil drawings, from which the plates of the very scarce work, Postel and Ruprecht's *Illustrationes Algarum*, had evidently been prepared, the majority representing the plates being reversed, but also included some algae which had not been utilised. The work consisted of only 200 copies, and the plates had been destroyed by fire. Very few of these copies were held by private individuals, and the work, which was issued in 1840, at the price of £40, was hardly ever purchasable. The drawings shown were formerly in the possession of Mr. E. Meinshausen, of the Imperial Botanical Garden at St. Petersburg, and are now the property of the University of Birmingham.

Dr. Otto Stapf, F.R.S., Sec.L.S., exhibited specimens of *Utricularia rigida*, Benj., from West Africa, and *U. neotioides*, St. Hil., from Brazil, the only known representatives of Kamien's section *Avesicaria*, which is characterised by the absence of Hedera. This condition seems to be correlated with the habitat of the plants, that is, rocks and stones submerged in running water. The plants are attached to the rocks or pebbles by modified clawlike rhizoids, very like the

"haptera" of *Podostemonacæ*. The fertile stems are erect, bearing the flowers and fruits above the water. The assimilation-apparatus is submerged and consists of much-divided, in their ultimate divisions, capillary branches, which resemble the "leaves" of our native *Utricularias*. In *U. rigida*, they seem always to spring from the base of the fertile stems and often attain a considerable length. Here and there they give rise to young fertile shoots, which attach themselves by throwing out "haptera" from their bases. In *U. neotioides*, however, they also spring from the axils of the lower three to five scale-leaves of the flowering stems, and remain rather short. Nowhere is any trace of bladders to be found. The flowers are those of typical *Utricularias*. The capsules are small and open, in *U. rigida* at least, by lateral slits, the valves remaining united at the top for some time. The seeds of both species are rather peculiar in the genus in so far as they exude mucilage when wetted. The coat of mucilage thus formed helps them in becoming fixed in positions suitable for the growing plant. *U. rigida* is known from the Sierra Leone coast to the head-waters of the Niger; *U. neotioides* from the mountains of Brazil (Bahia, Goyaz, Minas Geraes). Thus they form another link connecting the floras of West Africa and Brazil. In habit these *Utricularias* resemble two other aquatic plants of tropical Africa also found in running water, namely, *Quartinia*, a *Lythracea*, and *Angolæa*, a *Podostemonacæ*, of which specimens were shown.

Mr. F. N. Williams brought up for exhibition fresh specimens of a straw-coloured variety of *Lathraea Squamaria*, Linn., from Harefield, Middlesex, growing upon Elm-roots; the normal form grew also with it, but was earlier in its development than the variety now shown, and besides had the property of quickly turning black after being gathered, whilst the new variety retained its hue for more than 24 hours without much change; it was distinct from the pure white variety *nivea*, known on the Continent.

The General Secretary exhibited the Linnean MS. *Spolia botanica*, dated 1729, to show that the name *Linnaea* had been scratched out, and *Rudbeckia* substituted, in compliment to Prof. Oluf Rudbeck the Younger, in whose house he was then living as tutor. This shows that Linnaeus had early selected the plant which now bears his name, and he mentions two localities in Stenbrohult parish where it occurs, and that the choice of this plant to bear his name was not made when gathering specimens at Tugganforsen, in Lyksle Lappmark.

After this conclusion had been arrived at, and the erasure and substituted name shown to several Fellows on the 10th March, 1910, the discovery was made that Dr. E. Ahrling had recorded the same, which had been overlooked as being in a note in his *Carl von Linnæus Ungdomsskrifter*, i. pp. 92-93, of which the following is a translation:—"As regards the name or word *Rudbeckia* just employed, there is this peculiarity, that in the original manuscript the word was evidently written there after erasure, and of the first writing there remains a perfectly plain L. such as Linnaeus usually wrote, altered to R. Perhaps this suggestion may be ventured, that Linnaeus first wrote *Linnaea*, when he meant to keep these records to himself, but afterwards, when he dedicated them to Prof. L. Roberg (into whose hands, however, the manuscript perhaps never came), he considered himself bound to protect himself against people's ridicule."

Mr. H. W. Monckton and the Rev. T. R. R. Stebbing raised questions, which were replied to by the exhibitor.

The first paper was by Mr. Hugh Scott, entitled "Eight Months Entomological Collecting in the Seychelles," and in the absence of the author from ill-health, was laid before the meeting by Prof. J. Stanley Gardiner, F.R.S., who also illustrated the paper by a series of nearly 40 lantern slides.

The second paper, by Mr. J. M. Brown, was on "Some Points in the Anatomy of the Larva of *Tipula maxima*: A Contribution to Our Knowledge of the Respiration and Circulation in Insects." The author being absent, it was formally read in title.

The next meeting of the Society will be the anniversary meeting on Tuesday, May 24, 1910, at 3 p.m., for which special notices will be issued.

SCOTTISH HORTICULTURAL.

MAY 3.—The monthly meeting of this association was held on this date, when Mr. Whytock, the president, presided over an audience of 80. A lecture, illustrated by limelight views, was delivered by Dr. W. G. Smith, of the Edinburgh and East of Scotland College of Agriculture, on "Sense Organs in Plants." Dr. Smith gave the results of the latest investigations on the special organs by which plants perceive changes in environment, and so adjust their growth to secure the maximum benefit from light and other agencies. These sense organs vary much in structure, and their function is to receive stimuli from external forces and to convey signals to other parts of the plant. Dr. Smith put on the screen a number of photographs and drawings of plants to show the arrangements by which various kinds of movements were brought about in response to external stimuli signalled by these sense organs. These included illustrations of such phenomena as the adjusting of their leaves to intercept the maximum number of sun-rays, and by means of superficial cells, which act as lenses, to focus them on the sensitive protoplasm; the closing of their leaves to entrap insects; the action of the delicate mechanism in such climbing organs as tendrils, &c., which enables them to detect contact with other bodies.

The exhibits included a fine lot of Violas and Pansies from Messrs. DOBBIE & Co., Rothesay; groups of plants of the new variegated form of *Hedera Helix* var. *dentata* from Messrs. DICKSONS & Co., Edinburgh; branches of Peach, Nectarine and Red Currant with fine "sets" of fruit, as the result of fertilisation of the flowers by bees from Mr. W. STAWARD, Belford Hall, Northumberland; *Clanthus puniceus* from Mr. A. JOHNSTONE, Hay Lodge, Edinburgh; and a miscellaneous collection of spring flowers from Mrs. ALGIE, Hollymount, Co. Mayo.

The paper for the meeting on June 7 will be on "Insects Pests," by Mr. Geo. E. Greenhow, of the Edinburgh and East of Scotland College of Agriculture.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly committee meeting was held at the Royal Horticultural Hall, Vincent Square, S.W. Mr. Thos. Winter presided. Seven new members were elected. The death certificates of three members were produced (one being a lapsed member), and the following amounts were granted to their nominees, viz., £72 19s. 7d., £44 14s. 11d., and 12s. 7d. Two members over 60 years of age were granted their interest under Rule 18. Two members were granted 30s. each from the Convalescent Fund, in addition to their sick pay. The amount of sick pay disbursed during the past month has amounted to £43 19s.

DEBATING SOCIETIES.

GUILDFORD AND DISTRICT GARDENERS'.—Mr. H. Tann presided at the meeting held on Tuesday, April 26, when a floral competition took place among the members. The competition was divided into two classes, class I. being for the two best arranged vases of flowers, open to single-handed and under gardeners only; and class II. for the best table decorations on a given space, open to all. The time allowed for arrangement in each class was 30 minutes. Mr. H. Fulford won the 1st prize in both classes.

BATH GARDENERS'.—Mr. T. Parrott presided over a well-attended meeting, held on April 25, in the Forester's Hall, Bath. A paper was read by Mr. T. Challis, gardener to the Earl of Pembroke, Wilton House, Salisbury, on "Spring Gardening." The lecturer said that three quarters of a century ago spring gardening as now practised was not known. It was then the custom to plant the flower garden for summer and autumn decoration only. The beds were dug and the ground allowed to lie fallow for the winter and spring season, presenting a bare and cheerless appearance.

WARGRAVE AND DISTRICT GARDENERS'.—The last meeting of the session took place on Wednesday evening, April 27, and was given up to competitions in vase decoration. Flowers and foliage were provided by the members and great interest was shown in the proceedings. Head gardeners and foremen competed in one class and the first prize winner was Mr. A. Hirst. The class for amateurs did not produce so many competitors. The winner of the 1st prize was Mr. A. Keep, Scarlet Park.

SEVENOAKS GARDENERS'.—The fortnightly meeting of this society was held on May 3. Mr. Dafters presided. Mr. E. Yorke exhibited four plants of *Schizanthus*, not for competition, for which a 1st class certificate was awarded. Three new members were elected. Mr. W. J. Stables, gardener to de Barri Crawshaw, Esq., gave a lecture on "How and When to Pot an Orchid."

LAW NOTE.

DISHONEST DEALING.

At the Bow Street Police Court recently, William F. Smith, described as a general dealer, of Blackfriars Road, was charged, before Mr. Marsham, with obtaining a large quantity of Primroses by false pretences from Charles Marsh and John Pope, of Ashford, Kent. The prisoner advertised in a Kent newspaper his willingness to pay for wild flowers sent to him in London, and failed to carry out his promise. Complaints were received by the police from people who had been defrauded. The prisoner was sentenced to two months' hard labour.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending May 7, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—The general condition was cold and very changeable. Showers and squalls of rain, hail and sleet were very common, occurring in some localities every day, while passing thunderstorms were experienced on several occasions in various parts of England, and less frequently in Ireland and Scotland.

The temperature was below the average, as much as 8.3° in Scotland W. and between 2° and 3° in many other districts. The highest of the maxima were recorded at most stations on the 1st, and ranged from 66° in Scotland E. and England N.E. to 58° in England E. and to 57° in the English Channel. The lowest of the minima, which in most places occurred late in the week, ranged from 28° in Scotland E., 29° in England S.W., and 30° in Scotland W. to 34° in Ireland S. and to 42° in the English Channel. The lowest grass readings recorded were 21° at Crathes, 22° at Llangammarch Wells, 23° at Cambridge and Hereford, and 24° at Balmoral and Birmingham.

The mean temperature of the sea.—Except at Cromarty, Aberdeen, and Burnmouth the water was colder than during the corresponding week of last year, the difference being as much as 4° at Kirkwall and Cleggan. The means for the week ranged from 51° at Scilly, 50° at Plymouth and Seafield, and about 49° at some other places in the south-west, and also at Margate and Eastbourne, to 43° at Burnmouth and to 42° at Kirkwall.

The rainfall was more than the average in all districts except Scotland E., the excess being large in many places. Much of the precipitation consisted of hail or sleet.

The bright sunshine was less than the normal in the English Channel, and only equal to it in England S.E., but in all other districts there was a slight excess. The percentage of the possible duration ranged from 48 in England S.W. and 44 in England E. and the Midland Counties to 37 in Ireland N. and to 34 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending May 11.

The greatest cold in May since 1892.—Both the days and nights have been, with one exception, cold for the time of year. In fact, during the whole of the past three weeks, the mean temperature of the 24 hours has been below the average. On the coldest day of the week the temperature in the thermometer screen did not rise higher than 49°, which is about 10° colder than is seasonable, and on the two coldest nights the exposed thermometer registered 11° of frost, which is the lowest temperature indicated by that thermometer in any May since 1892, or for 18 years. These very low readings occurred during the almost constantly recurring cold period in May, which extends from the 9th to the 14th. The ground is now very cold for the middle of May, being as much as 5° colder than is seasonable, both at 1 and 2 feet deep. Rain or hail fell on all but one day, to the total depth of little more than a quarter of an inch. There have been small quantities of rain-water through each of the percolation gauges during the week until this morning, when there was no measurable amount. The sun shone on an average for 7½ hours a day, or for 1½ hours a day longer than is usual at this period in May. The wind was variable both in strength and direction, being mostly westerly during the earlier part of the week, and north-easterly and calm during the rest of it. In the windiest hour the mean velocity amounted to 20 miles—direction W. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by four per cent. E. M., Berkhamsted, May 11, 1910.

SCHEDULES RECEIVED.

Kingston and District Horticultural Society's annual exhibition of plants, flowers, fruit and vegetables, to be held in the ground of the Kingston Town Cricket Club, Richmond Road, Kingston-on-Thames, on Wednesday, July 27. Secretary, Mr. W. H. Farley, 29, Richmond Park Road, Kingston-on-Thames.

Ealing Horticultural Society.—The forty-sixth annual summer exhibition will be held on Wednesday, July 6, in the Walpole Park. Secretary, Mr. Geo. Cannon, Cannon's Nursery, Mattock Lane.

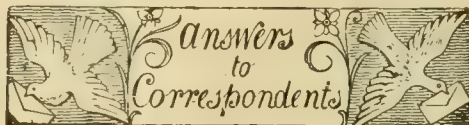
Yorkshire Agricultural Society.—A horticultural exhibition in connection with the seventy-third annual meeting of the society will be held at Roundhay, Leeds, on Tuesday, Wednesday, and Thursday, July 26, 27, 28, when prizes amounting to £215 will be offered. Secretary, Mr. John Maughan, Yorkshire Agricultural Society, Blake Street, York.

Obituary.

MR. GEORGE BURRIS.—We regret to record the death of Mr. George Burris, for more than 15 years gardener and bailiff to Frank May, Esq., Houndswood. Mr. Burris died on Friday, May 6, after six months' illness. He was one of the old type of gardeners, and was greatly esteemed by all who knew him. He leaves a widow and one son.

ENQUIRY.

POISON SUITABLE FOR DESTROYING MICE.—These destructive creatures are a pest in this neighbourhood. I have tried several advertised poisons without success, and should be glad to hear if anyone knows of a really good remedy. A. S.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

AZALEA LEAVES DISEASED: R. R. and A. H.

The leaves are attacked by the Rhododendron gall fungus, a species of *Exobasidium*. If you cut off the leaves before the fungus has developed spores, the plants will be less liable to attack the following year.

BULBS FAILING TO FLOWER: J. E. H. and Gardener. The bulbs are not diseased, and their failure to flower is probably due to the unsatisfactory season experienced last year. J. E. H. must be careful not to destroy the foliage by the scythe or lawn mower, the bulbs being planted in grass-land.

CANNAS UNSATISFACTORY: J. F. P. The foliage is exhibiting natural decay. Afford the plants warm, moist conditions, and they will soon develop new leaves.

CODIUM (CROTON) LEAVES: A. M. S. The injury has been caused by some external agency, such as cold water dripping from the roof, or it may be due to a sudden lowering of the temperature of the house.

CORRECTIONS: For *Saxifraga aretioides* on p. 294 read *S. aretioides*.—Mr. R. Wilson Ker died on the 3rd inst., and not on the 11th inst., as stated in last week's issue.

CUCUMBER DISEASED: C. H. The plants are affected with Cucumber canker, caused by the fungus *Mycosphaerella citrullina*. In a pamphlet on the disease recently issued by the Board of Agriculture and Fisheries it states that Tomatoes are also liable to the same complaint. The fungus has proved very destructive to Melons in America, and appears to be spreading slowly in this country. Spraying thoroughly with the Bordeaux mixture before the disease appears, and repeating at intervals to keep the plants covered with the solution, is recommended.

LEAVES EATEN: Hampstead. The damage has been caused by some insect, probably weevils. Spray the plants with an insecticide, such as quassia extract. If weevils are responsible, they should be trapped with pieces of Potato, Turnip, or some other vegetable.

LILIUMS WITH SPLIT STEMS: E. P. The plants are attacked by a disease caused by the fungus *Sclerotinia bulborum*. The affected plants should be destroyed by burning, and the land dressed with gas-lime or quicklime. The disease often accumulates in the decaying vegetable heaps on sites where garden rubbish is allowed to accumulate.

NAMES OF PLANTS: Roebuck. *Dendrobium Griffithianum*. The leaves are usually much thicker than those of *D. densiflorum*.—G. D., Surrey. *Sprekelia formosissima*, often called *Amaryllis formosissima*.—F. S. 1, *Coronilla Emerus*; 2, *Ribes aureum*; 3, *Ilex diphyrena*; 4, *Cupressus pisifera* var. *filifera*.—R. G. H. 1, *Rubus spectabilis*; 2, *Pinus excelsa*; 3, *P. monticola*; 4, *Picea ajanensis*; 5, *P. pungens*; 6, *P. pungens* variety.—Miss Eubank. *Iris*

Chamaeris.—H. S. *Primula capitata*, *Rhododendron arboreum* hybrid.—W. B. 1, *Symphitum officinale*; 2, *S. bulbosum*; 3, *Waldsteinia geoides*; 4, *Veronica saxatilis*.—A Subscriber. 1, *Cistus* sp.; send again when in flower; 2, *Cephalotaxus pedunculata* var. *fastigiata*; 3, *Saxifraga cordifolia*; 4, *Veronica Traversii*; 5, *Choisya ternata*; 6, probably *Hesperis matronalis*; send when in flower.—B. R. J. 1, *Prunus (Cerasus) pseudo-cerasus*; 2, *Pyrus (Cydonia) japonica*.—W. H. B. *Ornithogalum nutans*.—A. H. W. *Juniperus sinensis*.—W. S. *Orobis vernus*.—F. D. G. *Ornithogalum nutans*.—A. H. F. 1, *Begonia discolor*; 2, *Begonia Dregei*; 3, *Seedling Coleus*; 4, *Croton variegatum*; 5, *Ophiopogon variegatum*; 6, *Pellionia Daveauna*; 7, a variety of *Ixia grandiflora*.

"NEW IMPROVEMENTS OF PLANTING, &c.": M. W. This book is by no means rare, and it may be obtained with all the parts bound in separate volumes, Parts I. and II. bound together, also Parts I., II., and III., and complete in four parts. The edition which you mention as being dedicated to Prince Henry, was first published in 1717, and passed, as well as the other parts, through six or seven editions until 1731, the year previous to the author's death. In this edition, *The Herefordshire Orchards* is included. The price varies considerably, but a good copy, with plates complete, would not be dear at 15s. It is one of the best of Richard Bradley's numerous works, and Part I. is interesting because it contains the account of Fairchild's Mule Pink. Mears was the London publisher. If you care to give us details of the other volumes, we will gladly give you information regarding them.

ONIONS DISEASED: G. R. W. We have examined the leaves, but cannot detect the cause of the disease, which is probably present in the roots. As the same trouble occurred in Onions last year, the soil is evidently infected, and you should be careful not to grow a similar crop on the land for some years.

PELARGONIUM LEAVES SPOTTED: A. R. D. and J. F. P. The plants are affected with a bacterial disease. No cure is known; but you should destroy badly-affected plants, and be careful to propagate from healthy plants only. It is advisable to secure fresh stock entirely.

RICHARDIA (CALLA) WITH COLOURED SPATHE: A. H. We frequently receive *Richardias* with the leaf below the spathe coloured, sometimes entirely. The spathe itself is of the same character as a bract, so that the abnormality is not to be greatly wondered at. Your specimen is an excellent example, apart from the colouring in the leaf, the yellow in the spathe being exceptionally rich.

SWEET PEA FOLIAGE TURNING WHITE: E. F. The disease is not understood, although it is known to be due to some physiological trouble. No cure can be suggested. It is not, as you suggest, "streak" disease.

TENNIS COURT: B. H. Particulars for laying out a tennis court, with a diagram showing the measurements, were given in the issue for April 2, p. 224.

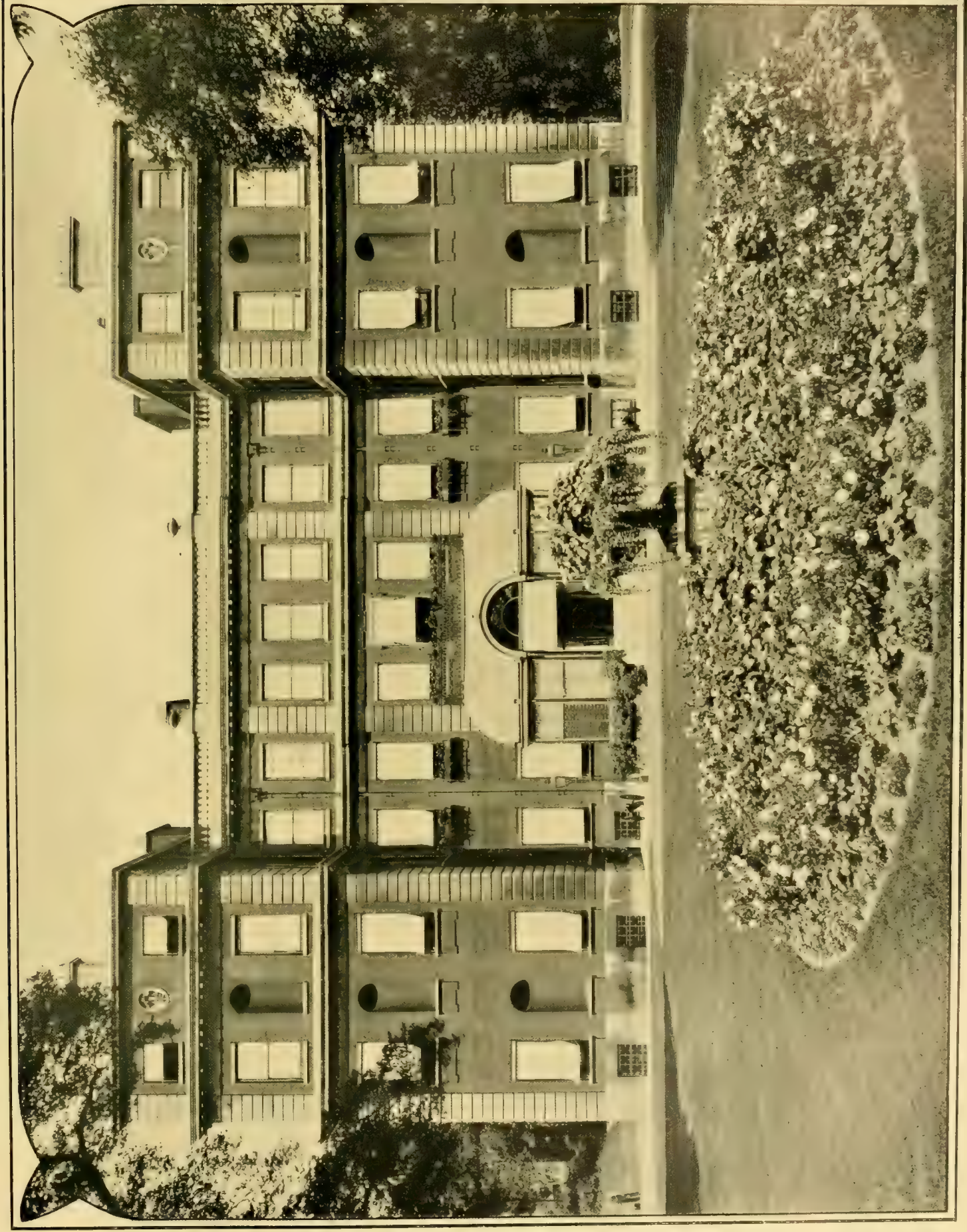
TOMATO: Constant Reader. The variety you mention is unknown to us. Try Sunrise or Lister's Prolific.

TULIPS DISEASED: Mrs. H. See reply to E. P. on Lilliums.

VINES UNSATISFACTORY: W. A. N. The specimens were packed much better than the earlier specimens, and they arrived in excellent condition for examination. There is no disease present; the trouble is due to some check caused by an error in culture.

VIOLA SEEDLING: A. C. D. The variety is very pretty and may be worth perpetuating. You should first ascertain from some nursery firm which makes a speciality of Violas if a similar kind is already in commerce.

Communications Received.—N. A. D.—W. J. B., Hanford—C. H.—S. G. J.—R. & Co., Bucks—J. E., Welshpool—Rev. H. F.—W. A. C.—Harry V.—C. G. Van T., Haarlem—E. M.—T. H.—Sir D. M.—A. D.—E. C. P.—G. H. C.—H. J. E.—Somersetshire—E. P. D.—F. A. G.—W. A. R.—E. A. D. W.—W. K.—A. J. E.—J. J.—Charles S. & Co.—J. Mac C.—Société Nat. d'Hort. de France—R. P.—W. E. C.—G. W. L.—T. H.—G. F., Yunnan—W. C.—J. D.—Charles H.—F. M.—W. Mac M. B., San Francisco—J. S. & Sons—John D., U. S. A.—C. T. D.—E. H. J.—W. C. C.—Reader.



Photograph by H. J. King.

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THE Gardeners' Chronicle

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THE PERILS OF PLANT-COLLECTING.

FEW realise the great hardships and dangers which have to be faced in order to secure new plants for cultivation in Europe. In the warmer regions there is danger from miasma, fever, animals and snakes. Not infrequently too, the collector has to seek his specimens among savage or semi-civilised peoples, who, in most instances, strongly resent his intrusion into their midst; thus seldom a year passes without toll being exacted in one way or another.

I will describe an incident I experienced whilst plant-collecting in Western China. In the N.W. corner of the Chinese province of Yunnan, where China, India and Tibet meet, and by the banks of the great Mekong river, at an elevation of 5,000 feet, was the French Catholic mission station of Tzekou. It is a country of mighty rivers; there, in a single degree of longitude, are four of the mightiest in the world, the Yangtze, or River of Golden Sand, the Mekong, the Salwin and the Irrawaddy; and of vast mountain ranges which tower up between the parallel rivers to far above the limit of eternal snow, which, at that latitude, (28 N.) is about 17,000 feet. The narrow valleys, broken by cross ridges and great spurs, are cut off from each other by difficult and dangerous passes, closed for half the year by snow. The great rivers, which flow through funnel-like gorges, are quite un-

navigable; the upper Mekong can only be crossed by bridges consisting of a single rope composed of split bamboos, across which passengers are slung, trussed up with leather thongs like chickens ready for the spit. Numerous tribes, nearly all of Tibetan origin, have settled and built their huts among the valleys and ridges. The diversity of customs, languages and religions in this little-known corner of the world is truly remarkable; like the slopes of the Caucasus, it might be called the country of the hundred nations. Here and there in the folds of the mountains the Lamas of the yellow sect have established huge gombas, or lamaseries, and, by a combination of force and fraud, have become the real masters of the country; they terrorise the poverty-stricken and superstitious peasantry, and pay little or no regard to the nominal sovereignty of the Celestial mandarins.

In the summer of 1895, I found myself collecting in these mountains, my headquarters being with the hospitable and venerable chief of the Tzekou mission, Père Dubernard. He first settled at Tzekou when Napoleon III. was at the height of his power, and he had never left the country since. The region was unsettled, the Lama world around had been disturbed by the British invasion of Lhasa in 1904, and still more rudely shocked by the attempt of the Chinese to establish themselves at Batang, a small town on the great road from Szechuan to Lhasa. These circumstances led to a rebellion of the Batang Lamas, and the murder, with all his followers, of a high Chinese official at Batang in March of that year. At the same time, the French missionaries stationed there, with all their converts, were killed, and the mission stations destroyed.

The trouble was not long in spreading south to Atuntze, a small Chinese-Tibetan trading station, situated on a terrace high above the left or east bank of the Mekong, and only two-and-a-half days' journey from Tzekou, which nestled under the cliffs close to the right bank of the Mekong, in latitude 28° N. Chinese officials and troops were sent to Atuntze in April to restore order, but it is needless to add they only made confusion worse confounded, and in a few days they were completely hemmed in. Rumours and counter-rumours poured into the mission at Tzekou day by day, adding to the difficulty of our situation, and the terror of the native Christians. It soon became clear that the Lamas meant business, and were determined to pay off old scores of jealousy against the missionaries, who had endeavoured for so many years, not without success, to deliver the people from the moral and material chains of Lamaism.

Even our friends among the Tibetans fell away from us or proved false. The mission house was indefensible, and, if defensible, we had no one to defend it save two aged French priests and myself. Therefore, when on the evening of July 19 the news came that the town of Atuntze had fallen, that the Chinese troops had been wiped out almost to a man, and that the lamaseries were all up and concentrating their forces to attack Tzekou, immediate flight became necessary.

The rising moon that night saw us making our way by a narrow and dangerous track along the right bank of the Mekong, the two

Fathers on their mules, and myself and the little band of native Christians on foot; on our left roared the Mekong in furious flood, on our right rose the great Mekong-Salwin dividing range. We hoped to reach the village of Yetche, 30 miles to the south on the left bank of the river, where there was a friendly chief and some Chinese troops; but, unfortunately, as in the dark we passed the lamaserie of Patong, owing to a noise made by some of our party, we were detected, and a shrill signal whistle was sent across the river to warn the countryside of our escape. Early next morning, at the next village, we were told that the enemy, by executing a forced march, had crossed the river to the south, and had raised the people there, thus cutting off our retreat. The local headman, a drunken and treacherous rascal, found many excuses to delay our flight, and thus we lost more valuable time. Eventually we got away from him, and proceeding early in the forenoon we reached a height to the south of the village. From this point we had a clear and extensive view looking to the north, and saw a great column of smoke rising in the still morning air over the site of Tzekou. Then our last hope of escape left us, and we knew the enemy was hot on our track. Descending from the height into the next cross valley, I was for pushing on as long as we had strength left to do so, hoping that we might be able to break through to the south before the enemy had time to form a complete cordon around us. However, after the sight of the destruction of their home, the last vestige of spirit seemed to leave my two companions; they became utterly despondent and began to make preparations for the worst, insisting on making a stop by the side of the stream in the valley for the double purpose of holding a meeting with our followers, and taking some food. So dangerous was the situation that, whilst my companions were engaged at their devotions, I left them and ascended a small auxiliary spur to reconnoitre. To the north I had a clear view of the crest of the ridge we had descended, and had not long to wait ere my expectations were realised. Suddenly there appeared a large number of armed men running at full speed in Indian file along the path we had just traversed. I gave the alarm at once and immediately all was confusion, our followers scattering in every direction. Père Bourdonnec became completely panic-stricken, made his way across the stream, by a fallen tree, and, despite my attempts to stop him, rushed blindly through the dense forest which clothed the southern face of the valley. However, escape in that direction I was sure would be impossible, as our delay had given the enemy time to mature their plans and close in on us; the Père had not covered a couple of hundred yards ere he was riddled with poisoned arrows and fell, the Tibetans immediately rushing up and finishing him off with their huge double-handed swords. Our little band, numbering about 80, were picked off one by one, or captured, only 14 escaping. Ten women, wives and daughters of some of our followers, committed suicide by throwing themselves into the stream, to escape the slavery, and worse, which they knew awaited them if captured. Of my own 17 collectors and servants only one escaped.

The valley in which we were surrounded was a rift in the hills some four miles long by one and a half broad, closed to the east by the Mekong, and to the west by the dividing range, while to the north and south were high ridges occupied by the enemy, and thickly clothed with Pine and mixed forests. When I saw all was lost I fled east down a breakneck path, in places formed along the faces of beetling cliffs by rude brackets of wood and slippery logs. On I went down towards the main river, only to find myself, at one of the sharpest turns, suddenly confronted by a band of hostile and well-armed Tibetans, who had been stationed there to block the passage. They were distant about a hundred yards, and sighting me at once gave chase. For a fraction of time I hesitated; being armed with a Winchester repeating rifle, 12 shots, a heavy revolver and two belts of cartridges, I could easily have made a stand, but I feared being unable to clear a passage before those whom I knew to be behind me arrived on the scene. Therefore I turned back, and after a desperate run, succeeded in covering my tracks by leaping

where they had been dropped by a fugitive or by some of the Lamas. During some of these days I was kept continually on the move, tracked and hunted like a wild beast by the Lamas and their Tibetan adherents, who thirsted for my blood. On the second day I was forced to discard my boots to avoid leaving a distinctive trail, burying them in the bed of the stream; another day I had to wade waist deep for a full mile up stream to evade a party who were close on my heels; once a few of them came on me suddenly and I was shot at, two of the poisoned arrows passing through my hat; another time my hiding place was discovered by a Tibetan woman, one of many who had been sent out to track me down. Once as I lay asleep under a log in the bed of the stream, exhausted by my night's fruitless journey up the mountain side, I was awakened by the sound of voices, and a party of 30 Lamas in full war paint crossed the stream a few yards above me. Armed as I was I could have shot down most of them, but, though enraged as I was at the time, I held myself in check, as I knew that to fire but one shot would

garden forms it may be noted that the first to raise hybrids was Dean Herbert in the early part of the last century. After that a few seedlings were raised from time to time, but the first firm to take the cross-breeding of *Hippeastrums* seriously in hand were Messrs. Jas. Veitch & Sons. The introduction of the charming and distinct *H. pardinum*, about 40 years ago, by Richard Pearce, of tuberous *Begonia* fame, no doubt gave the necessary impetus, though, after a few years, this species was not much used, *H. Leopoldii* then taking its place. Messrs. Veitch still take great interest in these flowers, and Messrs. R. P. Ker & Son, Liverpool, exhibit novelties every year.

Of amateurs the name of Lieut.-Col. Holford at once comes to the mind, and from his celebrated collection no fewer than three varieties were given Awards of Merit at the meeting of the Royal Horticultural Society on April 19 last.

The crossing of *Hippeastrums* is a very simple matter, as the anthers can be readily removed before they shed their pollen in order to prevent the flower becoming self-fertilised. The necessary pollen should be applied to the stigma as soon as the glutinous substance collects at the point. When fertilisation is effected the seed will ripen in about a couple of months, and if sown at once it will germinate in a very short time. The young plants should be nicely established in small pots before the winter.

Occasionally bulbs may flower in 18 months from the sowing of the seed, but at least another year is needed before the flower shows its true character, and in the case of some seedlings the cultivator must wait a much longer time before he sees the result of his cross.

DETAILS OF CULTURE.

There is a widespread idea that *Hippeastrums* require a large amount of heat, but they can be grown and flowered in a greenhouse, provided the minimum winter temperature is not below 50°. In gardens, however, which afford every convenience, the better plan is to place them in a warmer structure after flowering in order to encourage free growth. In a greenhouse temperature the month of May will probably be well advanced before the flowers are over, and by the end of the month they may be placed in an ordinary cold frame. I prefer this to a greenhouse containing a mixed collection of plants, as the frame can be shut early in the day to husband the sun-heat. Under such conditions the plants grow freely, and when it is necessary to harden them off they can be given full exposure to sunshine and air. This hardening off is essential, for well-ripened bulbs will stand a low temperature in winter better than the unripened ones, and they alone will yield a good display of flowers.

At one time it was considered necessary to repot *Hippeastrums* every year, usually in the months of January or February, but this treatment has undergone modification, and many cultivators do not now repot annually. They prefer when potting to use a good lasting compost, such as fibrous loam, lightened, according to its consistency, with leaf-mould or peat and silver sand. When *Hippeastrums* are not repotted every year a good plan is to examine the condition of the roots in the month of February, and all which are in a healthy state can be top-dressed with some rich compost. Any whose roots are not satisfactory should be shaken out of the soil and repotted. When the top-dressing is finished the bulbs must be watered sparingly till the young leaves and flower-spikes make their appearance, when more should be given, and as the plants develop, providing the drainage is in a good state, they will need a liberal supply.

When repotting is to be carried out, some successful cultivators prefer to do it immediately after flowering, when the roots are very active.

A stimulant in the shape of liquid manure is helpful during the growing season, when the energies of the plant are devoted to the building up of the bulb for another year. W.



FIG. 136.—A PLANT COLLECTOR IN CHINA.
Portrait of Mr. George Forrest taken in Talifu, May, 1905.

off the path whenever I rounded the corner. I fell into dense jungle, through which I rolled down a steep slope for a distance of two hundred feet before stopping, tearing my clothing to ribbons, and bruising myself most horribly in the process. I then got behind a convenient boulder and made every preparation for a stand should they succeed in discovering my ruse, which I never doubted but they would. Fortunately, however, they did not find me, and, presuming I had continued my course up the valley, rushed past my hiding place. There I lay till night fell, when I attempted to scale south, but, after toiling up 3,000 feet of rock and through forest and jungle, I found a cordon of Lamas, with watch-fires and Tibetan mastiffs, which precluded all hopes of escape in that direction, and, as daylight approached, I had to return to my hiding place by the stream. The following eight days and nights were hopeless repetitions of the first; the days were spent in hiding in the most convenient spot I could find at dawn, the nights in trying to elude the watchfulness of my enemies and get away south. For that time, a period of nine days, all the food I had consisted of two dozen ears of Wheat and a handful of parched Peas, which I providentially found

be to bring a hornet's nest about me. My only chance was to keep still. *George Forrest.*

(To be continued.)

FLORISTS' FLOWERS.

GARDEN VARIETIES OF HIPPEASTRUM.

HIPPEASTRUM REGINÆ, a red flower with a green centre, appears to have been the first species introduced into this country, having been sent from South America in 1725. The comparatively small-growing *Hippeastrum equestre* was introduced about 50 years later, followed in 1788 by *H. vittatum* and *H. reticulatum*.

More recent species which have been employed by the hybridist are *H. psittacinum*, a scarlet flower with a crimson veining and deep centre; *H. aulicum*, red in colour but very irregular in shape; *H. solandriiflorum*, a greenish-white, long-tubed flower which has undoubtedly played a considerable part in the production of the light-coloured varieties; *H. pardinum*, a beautiful flower of a creamy colour freely spotted with red, and the richly-tinted *H. Leopoldii*.

In passing from the original species to the

A "CANKER" OF APPLE TREES CAUSED BY THE "BROWN ROT" FUNGUS.

THE fungus *Sclerotinia fructigena*—in its conidial or *Monilia* stage—has long been known as the cause of the "Brown Rot" disease of the fruit of the Apple, Pear, Cherry, Plum and Peach. It is also well-known that the spawn (mycelium) of this fungus can invade and kill the wood of the Cherry, Plum and Peach, and it is not uncommon to find on these trees (when "Brown Rot" has been prevalent on their fruit) a "dying back" of the branches from this cause. The manner in which the wood of the



FIG. 137.—APPLES AFFLICTED WITH "BROWN ROT."

Bunch of Apples attacked and in course of destruction by the "brown rot" fungus (*Sclerotinia fructigena*). The Apples are already covered with tufts of the spores (conidia) of the fungus.

Peach is attacked is described by Prof. B. M. Duggar as follows: "The twigs are also susceptible, but it has been quite definitely shown that infection of the twigs results only when either flowers or fruit produced on the twigs have already fallen prey to the disease. In other words, the fungus must grow directly from the fruit or blossom into the young twigs, since it cannot readily penetrate the epidermis of the latter. Inoculation of the fungus into cuts on the bark will, however, also result in twig infection." The result of the attack is to kill the twig as the disease progresses. Prof. E. F. Smith states that the mycelium of the fungus grows most readily in the cambium and soft bast of the affected shoots.

During the past three seasons, I have observed that under certain circumstances the present fungus is able to cause an injury to the wood of the Apple—a fact which does not seem to have been recorded. This injury does not, as a rule, result in the death of the entire shoot, as in the case of the Cherry, Plum and Peach, but is localised and takes the form of a "canker." This "canker," which is always situated in the neighbourhood of a fruit-spur, may originate in two ways. In the majority of cases the infection of the branch proceeds in the following manner. The Apples of the tree in question, while they are developing, are attacked by the "Brown Rot" fungus; the flesh of such Apples becomes completely permeated by the spawn (mycelium) of the fungus, while tufts of spores (conidia) are produced on the outside (see fig. 137). Many of these diseased and half-rotten Apples fall to the ground, but it is not uncommon to find some of them remaining on branches of the tree

through the autumn and winter right on to the following spring or summer. The Apples which remain on the tree are in a "mummified" condition, with the flesh dried up and almost entirely consumed; the spawn of the fungus, however, remains alive and capable, under suitable weather conditions in the following year, of renewed growth and the production of tufts of spores (conidia) (see fig. 138). Now, in some cases, these diseased Apples, when rotting under the attack of the fungus—as shown in fig. 137—press against the part of the branch near the spur on which they are borne, and remain permanently fixed in this position—the decaying flesh of the Apple, at first softening and then hardening, and, as it were, glueing the Apple firmly to the branch. Under such conditions the spawn (mycelium) of the "Brown Rot" fungus grows from the diseased Apple into the branch, producing there a "canker"-like injury. In the following spring, or even during the winter, if it is a mild season, pustules of conidia appear over the "cankered" area, breaking out through cracks in the bark from the underlying mycelium. Sometimes the branch becomes completely girdled at the "cankered" spot, when, of course, the upper part of the branch dies; this, however, I have seen occur only in the case of the smaller twigs and not of main branches.

Another way in which the "Brown Rot" canker can arise on a branch is by the spawn (mycelium) of the fungus directly invading the wood from a fruit-spur which has become diseased through its flowers or fruit being attacked. The spur is gradually killed while the mycelium travels from its base into the branch and forms there a "canker," from which the dead remains of the spur projects as a "snag" (see fig. 139). In such cases the remains of the spur are usually covered over with numerous pustules of the spores (conidia) of the fungus (see X in fig. 139).

So far as I have seen, this injury to the wood is liable to occur only on certain varieties of Apples. I have found this form of "canker" most frequently on Worcester Pearmain; it occurs also on Ecklinville Seedling and Beauty of Bath, and I observed it lately in Jersey on trees of Ribston Pippin.

The chief danger of the presence of "Brown Rot" on the wood of the Apple lies not so much in the possibility of any extensive "dying-back" of the branches being caused, as in the cases of other fruit trees (Plum, Cherry, Peach),

of rotting, and not allow them to decay and affix themselves to the branches. A spraying of the tree in winter (while growth is dormant) with a solution of copper sulphate (1 lb. dissolved in 25 gallons of water), and with Bordeaux mixture (4 lbs. quicklime, 4 lbs. copper sulphate, 50 gallons water) just before the flower-buds open, and again directly the bloom has set, has proved most efficacious in dealing with "Brown Rot" on

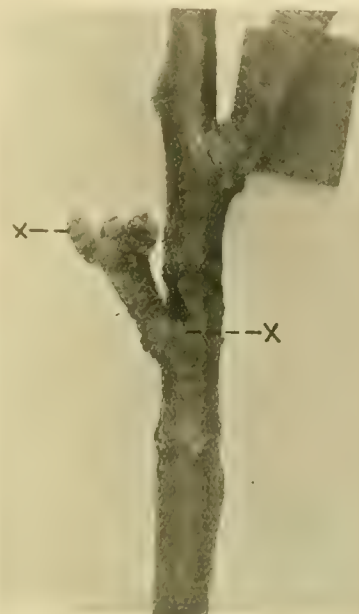


FIG. 139.—CANKER PRODUCED BY "BROWN ROT" FUNGUS.

A "canker" formed on the branch of an Apple tree by the "brown rot" fungus, the spawn (mycelium) of which has entered the branch through the fruit-spur. The fruit-spur bears tufts of spores (conidia) at X X.

Plums and Cherries, and this treatment should be employed for those varieties of Apple, such as Ecklinville Seedling, which are susceptible to this disease. E. S. Salmon, F.L.S., Mycologist to the South-Eastern Agricultural College, Wye, Kent.

THE ALPINE GARDEN.

SAXIFRAGA RHEI.

THIS plant has been described as a distinct species by Schott, but most botanists now consider it a variety under the name of *S. muscoides* Rhei. In its wild habitats *S. muscoides* is an extremely variable plant, and many varieties have been described. It is truly an Alpine species, ranging from 3,600 feet to 10,500 feet above sea-level on the mountains of Europe, Asia Minor and Persia, in its various forms; and it occurs on granite, gneiss, micascist, chalk, dolomite, basalt and other geological formations. This, to some extent, will account for its variable character. *S. m. Rhei* comes from Transsylvania, and under cultivation has proved variable beyond all expectations. Judged by the additional colours and varieties of different habit to which it has given rise, it must be regarded as a mutant.

The sudden origin of Guildford Seedling from *S. muscoides* Rhei would serve to confirm this idea. The variety still remains unique in its dwarf, compact habit, bright crimson-purple stems and rich, crimson-red flowers. It is the oldest and most widely-known of the forms here mentioned, though it is seldom seen in large quantities in gardens. The plant is of slow growth and impatient of disturbance, so that when broken up into small pieces many of them die before they get re-established, and this, in a measure, accounts for its limited distribution in private gardens. Pot culture in a firm soil suits it well in my experience. *S. m. Rhei Fergusonii* was for some time confused with Guildford Seedling by gardeners, but the variety *Fergusonii*



FIG. 138.—OLD APPLES WITH "BROWN ROT" IN THE CONIDIAL STAGE.

Dried up, "mummified" Apples (of the previous season) producing patches of the spores (conidia) of the "brown rot" fungus; taken from an Apple tree at the time it was in bloom.

since, so far as I have observed, the actual damage in this direction is slight. The danger consists in such "cankered" spots, covered as they are with tufts of spores (conidia), constituting a source of infection during the following spring and summer. The safest remedy, obviously, is to collect and burn (or bury in quicklime) any Apples as soon as they show any signs

has much paler flowers, and is less desirable. Similar in habit and size of flower to Guildford Seedling is *S. m. Rhei coccinea*, but the colour is paler and brighter. It is, indeed, a lovely companion to it, and sufficiently distinct to be grown even in a select collection. The stems are of a pale, brownish-red. Scarlet Gem has bright-rose flowers, with a crimson patch on the base of each petal, and the stems are practically green. I group it with Guildford Seedling and *coccinea*, on account of its dwarf habit and flowers of similar size. The autumn rosettes of leaves are remarkably compact and pretty. All three are well adapted for pot culture on account of their slow growth and compactly-tufted habit, but they are also suitable for cool, moist spots

flowers of the tall race of garden forms. Like most of the others above-mentioned, it gives evidence that the raisers have all been aiming at crimson and scarlet colours. Mr. R. J. G. Read, of Cadbyrie House, Ealing, has been raising seedlings for the last five years, commencing with the seed of *S. m. Rhei superba*, and he now has a large number of seedlings, showing crimson, red, rose-pink, cream, white and other shades of colour. The plants also vary remarkably in habit, and the stems range from 3 inches to 9 inches in height, and are proportionately floriferous. Many of them have dark zones on the flowers. No distinctive names have been given them, though the size of the flowers in many instances and their colours would warrant such a procedure. J. F.

placed in the nursery. Two years later, when arranging the collections of trees and shrubs, I moved two of them to the positions where they properly belonged; but it occurred to me, as this species was a rare subject and nothing was known about its sensitiveness to root disturbance in transplanting when it had attained considerable size, that it might be a wise precaution to leave one of the three where it stood in the nursery row, which I did. The two plants which were moved eventually died, but the one that was left undisturbed is now a spreading shrub 11 feet high, 15 feet in its greatest spread of branches, and 13 feet in its narrowest spread. The main stem is 5 to 6 inches in diameter at the base, and its branches 9 inches above the ground into three stout stems. The branching habit is thin, irregu-



FIG. 140.—CHIONANTHUS RETUSUS IN HIGHLAND PARK, ROCHESTER, U.S.A.

on the rockery, or on a northern aspect, though otherwise well exposed to light.

S. m. Rhei superba has longer stolons or barren shoots, and soon becomes plentiful in cool, moist situations. It is also of taller habit than either of the foregoing, and the flowers are at least double the size. The stems are almost as rich in colour as those of Guildford Seedling. The flowers may be described as rosy-pink, with a darker zone and a green eye. The newly-opened flowers are, of course, darker, but all of them fade with age. Ditton Crimson is also a large-flowered variety of a rich crimson-red at its best, and the stems are dark purple. All these varieties are before me as I write, and they are splendid acquisitions to the rock-garden, introducing, as they do, so many rich shades of colour amongst the mossy Saxifragas, the bulk of which have white flowers. It is true we long have had *S. m. atropurpurea* in the rock-garden, but the flowers are small and but little elevated above the foliage. So far as I have seen it, *S. m. Rhei Clibranii* has the richest and brightest

AMERICAN NOTES.

CHIONANTHUS RETUSUS.

It seems remarkable that the Chinese fringe-tree (*Chionanthus retusus*), which was introduced to cultivation from China by Robert Fortune about 1850, is still a rare plant in European and American parks and gardens. At that time Robert Fortune found it growing in a garden at Foochow, but he never saw it in a wild state. So far as we are able to ascertain, it practically disappeared from cultivation. It was introduced again from China between 20 and 25 years since by Maries, the collector for James Veitch & Sons, and the plants in cultivation to-day in Europe and America have been mostly distributed by this firm. The species has been found growing by later collectors and botanists in the neighbourhood of Pekin, and in Central and Southern China.

In the spring of 1892 we received three plants from Messrs. James Veitch & Sons, and they were

lar, and dichotomous. The bark is dull chestnut-brown, and on the older stems towards the base, the old bark hangs loosely, somewhat after the habit of a red Birch.

In the normal or average season in Western New York it is in good bloom about May 30, and it flowers about a week ahead of *Chionanthus virginica*. The 10 to 25-flowered panicles of pure white blossoms are produced from all the axillary and terminal buds of the preceding year's wood, and the petals are from 1 inch to 1½ inch long. The petals are not nearly so long as they are in the flowers of the American species, but they are produced in such extraordinary profusion that the half-unfolded leaves are almost entirely hidden, as may be observed in the illustration (see fig. 140), and the shrub is an object of much beauty when in bloom. It receives no special protection, but is growing at the foot of a gentle slope in warm, and naturally well-drained, light soil, facing the south.

Mr. E. H. Wilson, the distinguished Chinese explorer and botanist, who spent two days with

me here at the end of last March, just on the eve of his departure on his present expedition to China, was much surprised on seeing this specimen of the Chinese fringe-tree in Highland Park. Mr. Wilson said it was much larger than any he had seen in a wild state in China, or in cultivation. It would be interesting if readers of the *Gardeners' Chronicle* who have this rare and interesting shrub, would state what size the specimens have attained and how they have succeeded generally. *John Dunbar, Rochester, N.Y., U.S.A.*

ORCHID NOTES AND GLEANINGS.

DISA POLYGONOIDES.

PLANTS of this Orchid were exhibited on two or three occasions at the fortnightly meetings of the R.H.S., during the latter part of 1909, being shown by Sir Jeremiah Colman, Bart., and Messrs. Jas. Veitch & Sons, Ltd. A Botanical Certificate was awarded the species when shown on September 28, 1909 by Messrs. Veitch. The plant is found wild in marshy valleys, and its habitat extends from Grahamstown eastwards to Natal, and, judging from the number of tubers sent home, it must be fairly common. The small flowers vary in colour from yellow to light red, being set closely upon the stem, with the face of the bloom turned outwards. The flowering portion of the spike is about 1 foot in length, while the whole scape measures about 2 feet. The leaves are from 6 to 10 inches long, and an inch or so in width: the tubers vary slightly in size; as a rule, they are from 3 to 5 inches long. *Disa polygonoides* has been found to succeed best under the same treatment as is afforded *D. grandiflora* and *D. Luna*. The plant should be given plenty of water during its period of active growth; but in its season of rest it needs but very little. *B.*

' NEW GARDEN WORMS.

IN 1909 the Curator of the Physic Garden, Chelsea, sent me a consignment of worms, which contained, in addition to some specimens of *Enterion ictericum* (described in the *Gardeners' Chronicle*, October 23, 1909), some examples of another species which closely resembles the mucous worm (*Eisenia mucosa*). As there were, however, various important differences between the two, I determined to wait until further material was forthcoming before preparing a detailed description. In the month of April of this year Mr. Hales sent me a good supply of specimens of the same annelid, and I have come to the conclusion that it is not only new to our English gardens, but represents a subspecies at least which does not appear to have been described. I therefore call it *Eisenia glandulosa*, a subspecies of *E. mucosa* (= *rosea*). It is very nearly related to two or three other worms, but does not agree in all points with any whose description has come under my notice.

Let me first proceed to describe the annelid, and then point out its relationship to, and differences from, the allied genera.

Eisenia glandulosa is a somewhat small worm, ordinarily measuring about 2 inches long and of narrow diameter. It can extend itself much more than many other worms, so that when stretched it may measure as much as 7 or 8 cm. (= 3 inches). In alcohol it contracts to 1½ or 2 inches. Its diameter is from 1.5 mm. in the tail to 3 mm. at the girdle, and there are about 140 segments. The segments forming the head, from one to 14, are simple, behind these they are usually triannulate, or composed of three rings, the central one carrying the setae. The colour when feeding varies, the head being fleshy, the tail a yellowish-green, the girdle clay-coloured, and the part between the girdle and the male pores (segment 15) somewhat purplish. When the worm has been kept a time in moss,

however, it becomes much more pink, and closely resembles the mucous worm in colour. It differs from that species, however, in the matter of the fluid contents of the coelom; for while in the mucous worm a chalky-white deposit is exuded, that from the new worm is a dirty yellow fluid like the exudation from the Brandling (*E. fetida*). This yellow mucus is seen in the body

ment, the latter being usually very tumid ventrally. The girdle, which is always one of the most important characteristics, extends from the 26th to the 32nd segment, and it is here that we find the most distinctive features. The segments are simple like those of the head, and not triannulate. They are not usually fused even in the most perfect adult, but may be seen



FIG. 141.—FLOWERING SPRAY OF CHIONANTHUS RETUSUS: FLOWERS WHITE.

as a finely-powdered material, but it is not so strong smelling as in the Brandling.

The dorsal pores are found to begin between segments four and five, and are seen with ease, though not quite so conspicuous as in its nearest ally, the mucous worm. The male pores are not conspicuous, but a pair of very prominent glands or papillae is found on segment 12, while similar glands occur at times on the 10th or 9th seg-

separately both above (dorsally) and beneath (ventrally). The tubercula pubertatis extend from the 29th to the middle of the 31st segment, and form a band on either side which runs on uninterruptedly, bridging over the divisions between segments 29-30 and 30-31, as shown in fig. 142. But the most striking feature of all is the seven sets of glands on the ventral surface of the girdle, on which account I have

adopted the name *glandulosa*. This peculiarity has hitherto been described for only one other species, and that (*E. macedonica*) has never yet been found in England. These glands serve at once to distinguish it from its related English form (*E. mucosa*), and when once that point has been determined the others can soon be made out.

Thus, the head does not cut into the peristomium (see Fig. 142), as is the case usually with this class of worms. The chief characteristics of the allied mucous worm are the following. The body is usually of a clear pink, rose, or flesh colour, the blood vessels well seen, and the girdle much wider than the other parts of the body. When placed in alcohol it exudes a thick liquid which looks like lime-water, and the solid white matter coats the body. The male pores are on very prominent papillæ, and there are frequently to be found certain glandular processes or papillæ on other segments, but not on the same segments as in *glandulosa*, nor of the same shape and disposition.

There are two other worms which the Chelsea species resembles. One has been named *macedonica*, but there are conflicting descriptions, and it is difficult to be quite certain whether the different authors have had the same species always before them or not. The one most striking feature common to *glandulosa* and *mace-*

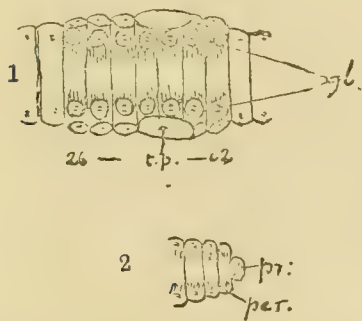


FIG. 142.—*EISENIA GLANDULOSA* FRIEND.

1. Girdle segments, showing glands (gl) and tubercular pubertatis (t.p.) enlarged. 2. Head, showing prostomium (p.r.) not cutting the peristomium (per).

donica consists in the glands under the girdle. Ribaucourt says that in *macedonica* they are found on segments 26 to 33, whereas in *glandulosa* they extend from 26 to 32. Moreover, Dr. de Ribaucourt's specimens were 17 cm. in length in alcohol, or about four times as large as my *glandulosa*, while the tail had a tendency to flatten out and measure $3\frac{1}{2}$ mm., as against $1\frac{1}{2}$ or 2 mm. in mine. There are no glands on the front segments of *macedonica*, and the tubercular pubertatis seem to cover the whole of the three segments 29-31, while in *glandulosa* only one-half of the 31st segment is affected by them.

In some respects the new worm approaches more nearly to a Continental annelid named by Dr. de Ribaucourt, *Alloobophora Danielli* Rosai, after Dr. Rosa, formerly of Turin, and author of a very valuable *Memoir on the Lumbricidi*. This species is of a mean length of 50 to 60 mm., and is about 2 or $2\frac{1}{2}$ mm. in diameter. It has about 140 segments, and the colour is fleshy or rosy in front, while the rest of the body is greyish. The male pore and papillæ resemble those of *glandulosa* in being less conspicuous than in the mucous worm, the first 15 segments are clearly defined, while those between the male pores and the girdle are difficult to count, except by the aid of the setæ. The girdle extends usually from the 26th to the 32nd segment, and the tubercula cover the three segments 29, 30 and 31. But there are no glands or papillæ, and the author says nothing about the dorsal pores or the nature of the liquid which the worm exudes.

It would seem, therefore, that the mucous worm (*E. mucosa*) is almost as variable as the Venetian worm (*E. veneta*), of which I gave an account in these columns some time ago. Here,

as in the case of *A. caliginosa*, there is every degree of similarity and divergence, so that it is possible to supply connecting links between the subspecies or species. This makes it very difficult at times to determine to what species certain individuals belong, while at the same time it affords a splendid object-lesson in the formation of new species. As I have, so far, found this worm nowhere else in England, it seems likely that it may be a modification of the typical mucous worm, or may have been imported from abroad. In the days when foreign plants were being received from distant lands. *Hilderic Friend, St. Asaph, Malvern.*

The Week's Work.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

The season.—Since the last Calendar was written the weather has been very cold. On Tuesday the 10th inst. 8° of frost were registered in these gardens, and the young shoots of many plants, particularly deciduous shrubs, were injured. Many of the Polyanthus were completely spoiled, especially those that were exposed to the sunshine early in the morning, and those which belong to the darker shades of colour. Plants of various kinds which were placed out-of-doors to harden, received a check, and it has been necessary on frequent occasions to cover them with protective material even during the daytime. The general character of the weather has delayed the spring bedding, and for this reason the planting of the beds with summer bedding will have to be delayed as late as possible. The best thing to be done is to give careful attention to watering the summer plants in order to keep them in a growing condition until the beds are available.

Seed-sowing.—During the next fortnight seeds may be sown of various plants which will be required for spring bedding. Choose a sheltered border where the soil has been deeply dug, and let the surface soil be deeply forked over and raked into a tilth of fine soil, then draw shallow drills 9 inches apart in which to sow the seeds. Some of the plants that may now be sown are Wallflowers, Alyssum, Myosotis, Iberis, Polyanthus, and such herbaceous plants as can be readily raised from seed, including Delphinium, Francoa, Campanula, Papaver and Anchusa. Sow the seeds thinly, it being a mistake to allow these to germinate in a crowded condition. A border which is not exposed to the hottest rays of the sun is the best position for planting Wallflowers, and the ground between the plants should be frequently loosened with the Dutch hoe; they need thorough soakings of water during hot weather.

Dahlia.—Although in favoured localities Dahlias are already planted out-of-doors, in many districts more care is necessary. At Aldenham the tubers are placed in large pots and started in a cool house, the plants being afterwards thoroughly hardened before they are placed in their flowering quarters. Dahlias do best in a deep-rooting medium and, whether placed at the back of the herbaceous borders or in clumps by themselves, the soil should be well enriched with manure, and plenty of space allowed for top growth. Dahlias may be planted in the shrubbery where space exists, and such plants will furnish a supply of cut blooms besides being effective in combination with the shrubs. The plants will need stout stakes for the purpose of securing the growths, which otherwise will soon break off. During hot weather, Dahlias obtain much benefit from a mulch, which improves the flowering and saves labour in watering. All types of Dahlia are useful for supplying blooms for cutting, including the newer Pæony-flowered varieties.

General work.—The ground is very moist, and directly warmer conditions prevail weeds will grow rapidly. These must be destroyed by the Dutch hoe, and the use of this instrument will loosen the top soil. As soon as Sweet Peas show signs of flowering, afford them a stimulant in the form of some artificial manure. Apply it just before a shower, and then lightly fork or rake it into the ground. The hardier bedding plants may be placed where they will flower, and

vases on terrace walls may be filled with soil ready for the reception of the plants. Give a sprinkling of soot or artificial manure to Roses, and then loosen the ground with the Dutch hoe. Continue to sow Grass seed where the turf has become worn, and take means to prevent the birds getting the seeds.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Kalanchoë flammea.—This plant requires a porous soil and full exposure to sunshine in order that the shoots will mature thoroughly and flower well. Propagation may be effected either by seeds sown at the present time, or division of the flower stem. The latter should be cut into small pieces, each one containing a healthy bud, and they should be inserted in shallow pans filled with sandy soil, which can be plunged in a mild bottom heat. Cuttings taken from the base of the old plant will also form roots and provide plants for flowering early next spring. As soon as the seedlings or rooted cuttings are well established they should be transferred singly to 3-inch pots, filled with a mixture of fibrous loam, coarse sand and broken charcoal, or small pieces of crocks, it being essential that the compost be very porous. Allow the plants to grow steadily in the intermediate house, near to the glass, and as the autumn approaches reduce the temperature and allow plenty of ventilation, so that the shoots will become well-ripened. During the winter-time the plants must be kept somewhat dry at the roots, and fresh air must be admitted on all favourable occasions.

Schizanthus.—The variety *Grahamii* has flowers with a charming combination of lilac and orange shades supported on stout stems, enabling the blooms to be used for cut purposes. Cultivators often make the mistake of shading these plants, whereas they do best when fully exposed to sunshine. By this I do not mean at such times as when they have been newly potted, or when in their seedling stages.

Gloxinia.—Plants which have completed their flowering will need to be ripened in a warm, airy position. Reduce the supply of moisture at the roots gradually until the corms are thoroughly mature, and the foliage decayed; they may then be stored until required next spring.

Euphorbia Jacquiniaeflora.—Select for cuttings shoots which have been well-exposed to the sun, as these will not be so liable to damp when placed in small pots.

Chrysanthemum.—Some of the earliest plants will be ready for transferring into their flowering pots, which should be thoroughly well cleansed and suitably drained. The potting compost should consist of three parts fibrous loam, from which the finer particles of soil have been shaken, coarse Bedfordshire sand, broken charcoal, and lime rubble, adding a 6-inch pot full of artificial manure to each barrow load of soil; it is desirable to have this compost mixed some weeks before it is required for use. See that the ball is properly moistened before the plant is repotted, and repot firmly.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Seakale.—Plants which have not been forced are probably producing flower-spikes, which should be cut off just above the ground level with a sharp spade while they are in the early stages of development. Thin the shoots to two or three on each plant, which will be sufficient to form good clumps for forcing next year. The ground will require to be hoed and kept free from weeds; with this exception, the plants will not require further attention.

Globe Artichokes.—Thin the shoots on the plants, leaving the stronger ones, as only these will be likely to develop good heads. Apply frequent waterings with liquid manure during the growing season, and a dressing of seaweed or some other manure, containing salt will benefit them. Although Globe Artichokes love moisture at the roots during the growing season, they will not survive the winter in wet land. It is necessary, therefore, to place them in open situations, and apply water freely during the summer months.

Brussels Sprouts.—Plants for furnishing the earliest Sprouts should be ready for planting out. Allow them 3 feet between the rows, and 2½ feet from plant to plant. Make the ground moderately firm before planting as this causes the plants to become stocky and form sprouts earlier than when grown in loose soil. If the weather is dry at the time of planting, water the young plants liberally.

Seed-sowing.—Late sowings of green vegetables often furnish better plants for withstanding the winter than those raised earlier. Small sowings of Savoy and late Broccoli, also Rosette Colewort, for use in November, may now be made. For the spring supply of hardy green Colewort a sowing should be made in the middle of June, at which time Christmas Drumhead Cabbage should also be sown. This variety is largely grown for the London markets, and possesses good, edible qualities. The spring-sown Cabbage is now ready for planting out in drills, 18 inches apart, planting the Cabbages 1 foot apart in the row. Make another sowing to furnish a supply in August and September. These frequent small sowings at intervals will provide a supply of tender young Cabbage through the greater part of the year. Red Cabbage raised from early-sown batches is now ready for planting. Place the plants 2 feet apart each way, and afford a good watering directly they are planted. The ground for this crop can hardly be too rich.

Winter Spinach and Broccoli.—This crop should be cleared as soon as the spring-sown batch is ready for use. The plants should not be allowed to run to seed. A good crop to follow the Spinach is Autumn Broccoli. A liberal dressing of farmyard manure should be applied before the Broccoli is planted, and efforts should be made to have the Broccoli ready for cutting before severe frosts appear. Halloween, Giant Cauliflower and Autumn Protecting Broccoli planted early in June will furnish fine white heads throughout November and December.

Turnips.—The first sowing of early Milan Turnips will soon be ready for pulling. The successional sowings should be thinned as soon as the plants are high enough, and further sowings made fortnightly to ensure an unbroken supply through the summer months. These late sowings should be made on a north border. Red Globe and Snowball are good varieties for present sowing.

Mint and Sage.—It is not too late to make fresh plantations of Mint in light, rich soil. Plant the cuttings at 1 foot apart between the rows, and the same distance from plant to plant. Select for the purpose young, growing shoots, about 4 inches long, planting them singly by means of a dibber. Cuttings of Sage should also be inserted now, allowing a distance of 18 inches between the rows. Make the soil firm by means of the dibber, and shade the cuttings from strong sunshine. Employ any means to prevent dryness in the soil.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Præces and Nectarines.—In the process of disbudding, one or two well-placed growths should be preserved at the base of each shoot, according to the space to be furnished, and it may be necessary to leave one or two new growths near the middle of any extra long branches where there is room for fresh shoots to be trained. The terminal on each branch should be allowed to remain for the present, as the sap will be directed towards it; but as soon as the trees are growing freely it may be pinched back or removed altogether; do not destroy it if there is a fruit between it and the next shoot from the leader. In disbudding young trees, great care is needed, as the foundation of a good tree is then formed, the object being to obtain a proper number of well-placed shoots at the base of the tree. Branches must be at least 5 or 6 inches apart; but if the trees are breaking vigorously, one or two shoots may be retained between the bottom and leading branches as near to the former as possible, without causing overcrowding. The leading shoots should be pinched when they have developed five or six leaves. Keep a sharp look-out for insect pests, and apply an insecticide whenever necessary. Syringe the trees with clear water on favourable occasions, as this will assist to keep down insects, and generally promote a healthy

growth. See that newly-planted trees and those growing on light soils do not suffer from drought.

Protecting materials.—Such things as tiffany which have been used for protecting blossoms and wall trees can be dried and stored for another season. In northern gardens and in cold situations in other districts it may be still necessary to retain the protecting material for a further period, as it is not advisable to expose the trees suddenly to cold, and they will be all the more susceptible to injury where they have already had protection.

Pears.—Severe frosts and hailstorms have destroyed much of the blossom and injured the young shoots, which is to be regretted, as the trees looked so promising. The Pear midge (*Diplosis pyrivora*) does great damage to the crops, attacking the fruits when very young. The affected fruits may be known by little black swellings and a generally deformed appearance; any injured by the maggot should be burned, as this will destroy the grub in its young stages. Another method of treatment was given in the Calendar for February 19.

General work.—Examine the grafts and see that they have protection in the shape of small sticks from rough winds. Be careful when tying on the stocks that the scion is not moved out of position. Remove any suckers rising from the stocks. Hoe the ground frequently to prevent weeds, and give constant attention to all fruit trees in the matters of disbudding and training.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Cymbidium.—Such species of Cymbidium as *C. eburneum*, *C. e. Dayanum*, *C. Lowianum*, *C. L. color*, *C. Hookerianum grandiflorum*, *C. Tracynum*, *C. giganteum*, *C. insigne*, *C. erythrostylum*, *C. Sanderi*, also the hybrids *C. eburneo-Lowianum*, *C. Lowio-eburneum*, *C. Holfordianum*, *C. l'Ansonii* (natural hybrid), *C. Wiganianum*, *C. Lowio-grandiflorum*, *C. Colmanæ*, *C. Lady Colman*, and *C. Ballianum*, are all excellent Orchids, which thrive well in a cool part of the intermediate house if the plants are shaded from strong sunshine. Any of these plants which have become pot-bound may be repotted soon after they pass out of bloom; but unless repotting appears really necessary, the plants may be left undisturbed for several years, as they generally produce flower-spikes more freely when in a pot-bound condition, especially those of the *C. Lowianum* section. When repotting the plants into larger pots, these receptacles should be one-third filled with crocks. For the compost I use one-half good turfy loam, and *Osmunda* fibre, leaf-soil, and Sphagnum-moss in equal parts to form the other half. The fibre and moss are cut up rather fine to mix well with the loam, and sufficient small crocks are added to keep the soil porous. In potting, the compost should be pressed down among the roots with moderate firmness, and space should be left below the rim sufficient to allow of a thorough watering, as well-established plants, during their growing season, require copious supplies. *C. Devonianum* is distinct in its habit and mode of flowering, producing pendent flowering racemes like a *Stanhopea*, therefore shallow Teak wood baskets are preferable to pots. For the dwarf-growing *C. tigrinum*, shallow pans which may be suspended from the roof are most suitable. When the plants have been repotted, they should be given one good watering, but afterwards care will be needed in this matter for some time. Other species of Cymbidium which thrive in a cool, intermediate temperature are *C. ensifolium*, *C. lancifolium*, and *C. Wilsonii*, *Cyperorchis* (Cymbidium) *affine*, *C. Mastersii*, and *C. elegans*. During the summer months these Cymbidiums appreciate a moderately cool, moist atmosphere, therefore it is necessary to damp well between the pots several times a day, and when the weather is warm and bright a light spraying overhead occasionally during the daytime will assist to keep them clean and healthy. Heavy sprayings or syringings of the foliage should be avoided.

Phaius.—Such species as *Phaius Wallichii*, *P. Mannii*, *P. bicolor*, *P. flavus*, *P. maculatus*, *P. Mishmensis*, *P. Sanderianus*, *P. grandifolius*, and *P. Blumei*, also the hybrids *P. Cooksonii*, *P. Marthæ*, *P. Norman*, *Phaio-Calanthe Colmanii*,

P.-C. Arnoldiæ, and *Phaio-Cymbidium Chardwarensis* should be repotted when growth recommences, using the same kind of compost, and potting them exactly as advised for the Cymbidiums. These species and hybrids of *Phaius* succeed best in a warm, moist, shady corner of the Cattleya house. They require an abundance of water at the root throughout the growing season. *P. tuberculosis* thrives best in a stove-like temperature. All the species of *Phaius* are liable to the attacks of small, yellow thrips, therefore the plants should be frequently vaporised, which is preferable to the constant use of brush and sponge. Large, fleshy scales are sometimes troublesome, but these insects are easily eradicated by sponging.

Neo-Moorea irrorata.—This rare plant is now starting to grow, and if fresh compost is required it should be given at once. The species suffers much check from root disturbance, therefore, when repotting becomes necessary, it should be done with every discretion. The plant will succeed in a mixture of *Osmunda* and *Polypodium* fibres and Sphagnum-moss in equal parts. Place the plant near the *Phaius* in the Cattleya house, and afford plenty of root moisture until growth is completed. Carefully attend to the shading of the houses, especially during the present season of the year.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, G.C.B., Moulton Paddocks, Newmarket.

Early Peach trees.—Pot plants which have ripened their fruits should be hardened gradually before placing them out-of-doors. Continue to afford the roots liquid manure in order to keep the plants in a growing condition, and the syringe may be used frequently to keep the leaves free from red spider. Trees in borders which have also ripened their fruits will need every encouragement to induce them to mature their wood thoroughly. Cut out any useless shoots which have borne fruit this season, in order to give the others more room. Ventilate the house to the fullest extent and pay careful attention to watering the borders. Well-established trees and those which have borne heavy crops this season may be given a mulching of cow-manure. Syringe the foliage frequently, applying the water with some pressure to the under sides of the leaves.

Later Peach trees.—Trees now ripening their fruits should be kept moderately cool, and syringing must be discontinued. Still later trees will need to have their growths regulated and tied. Fruits approaching the ripening stage must be propped up to the light as much as possible. In the case of trees growing on the front trellis, this may be done easily by placing pieces of lath crosswise under the shoot, but the lath should always be placed above the fruit, so as not to interfere with the flow of the sap to the fruit itself. Trees trained against back walls require a different method; it is usual to place at right-angles to the wall pieces of lath about 3 inches long, with a notch cut at one end to hold the shoot. If this is done with care, it will not only tend to the better development of the fruits, but the effect of the trees will be enhanced. Such supports should be uniform in size and length. Ventilate the house freely during favourable weather, but in such a manner as will not cause draughts of cold air. Syringe the trees once or twice each day, according to the condition of the weather. If syringing is done in the morning, this should take place before 8 a.m., in order that the leaves may become fairly dry before the sun is sufficiently hot to scorch them.

Watering the borders.—This work demands considerable time at this season of the year, and the crops are greatly influenced by the manner in which such operations are carried out. Borders which are well-drained are generally benefited by application of water every week when the trees are making active growth; but in cases where the drainage is less perfect or the border is a new one, it is easy for the cultivator to apply too much moisture, and thus cause the soil to become sour. Every gardener must be guided to a large extent by the particular circumstances with which he has to deal. Water applied to borders at this season should be in a luke-warm condition. Liquid manure or soot water may be given alternately with clear water in cases where stimulants are considered necessary.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MAY 24—

Roy. Hort. Soc. Sh. in Temple Gardens, Thames Embankment (3 days). Bath and West and Southern Counties Sh. at Rochester and Chatham (5 days). Anniversary meet. of Linnean Soc.

WEDNESDAY, MAY 25—

Ann. Meet. British Gard. Assoc., at Essex Hall, Strand, at 7 p.m.

THURSDAY, MAY 26—

Haarlem International Exhibition (4 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—53.3°.

ACTUAL TEMPERATURES:—

LONDON.—Tuesday, May 17 (6 P.M.): Max. 66°; Min. 52°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Wednesday, May 18 (10 A.M.): Bar. 29.8; Temp. 64°; Weather—Sunshine.

PROVINCES.—Tuesday, May 17; Max 63° Bury St. Edmunds; Min. 49° Scotland E.

SALES FOR THE ENSUING WEEK.

MONDAY—

Freehold nursery, with possession, at Meopham, near Gravesend, at the Mart, E.C., by Protheroe & Morris, at 2.

TUESDAY—

Unreserved sale of 150 Orchids, by order of Messrs. Sander & Sons. Also Odontoglossums, from the Arddarroch Collection, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

WEDNESDAY—

Duplicate Plants, from the "Oakwood" Collection of Orchids, by order of the Exors. of N. C. Cookson, decd.: at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

Liliums, &c., at 1; Palms and Plants at 3; at Protheroe & Morris' rooms.

Clearance Sale of 50,000 Bedding Plants, at 159, Ravenscroft Road, Beckenham, by Protheroe & Morris, at 1.

THURSDAY—

Important Sale of Established Orchids; also Importations received direct, at 1, at Protheroe & Morris' rooms.

The **New Order of the Board of Agriculture.** The attention of horticulturists is directed to the *Destructive Insects' and Pests' Order of 1910*, which has been issued by the Board of Agriculture and Fisheries. The order, which we print in this issue, applies to Great Britain, and with its publication the *Destructive Insects' and Pests' Order of 1908* is revoked.

The new order marks a definite step in the attempt to cope systematically with the damage done to agriculture and horticulture by insect and fungal pests. Among the pests included in the schedule to which the order applies are 11 insects and five fungi. The insects thus put in the index are the vine louse, the San José scale, the Mediterranean fruit-fly, the Colorado beetle, the large Larch saw-fly, the Potato moth, the gipsy moth, the brown tail moth, the nun moth, the Cherry fly and the Narcissus fly. The fungal pests which come under the ban of the Board are black knot, wart disease (black scab) of Potatoes, Tomato leaf-spot, Melon or Cucumber canker and American Pear blight.

The order provides that the occupier of premises on whichever of these diseases declare themselves shall *notify* the fact, together with particulars, to the officer ap-

pointed by the local authority, or if no such officer exists in the locality, the Board itself must be notified.

On the report of the officer, the local authority is required to inform the Board of Agriculture, and also to take steps to determine to what extent the insect—or fungus—pest exists in the infected area.

The officer has, moreover, the right of entry to any premises on which he has reason to believe there exists any insect or fungus mentioned in the schedule, and has also the power to examine any plant, fruit, crop, seeds, tubers, bulbs, layers or cuttings on such premises. The powers of the local authority to deal with the scheduled pests are considerable. In the first place, it may require, through its officer, that the occupier of the land subject to the pest shall adopt such measures for preventing the spread of the insect or pest as are specified in the notice. In the second place, where the local authority has consented to pay compensation, it may order the destruction of the diseased plants. The owner, however, has the right of appeal to the Board, and the Board may cancel the order for destruction or modify it, as it may think fit.

Other sections of the order impose penalties for the sale, or use for planting, of diseased seeds, tubers, bulbs, layers or cuttings, and also prohibit the importation or sale of living specimens of any of the pests mentioned in the schedule.

Being in full agreement with the principles of the order, we congratulate the Board on the courageous course it has adopted. At the same time, we may point out that unless the order is applied gradually, sympathetically, and with discrimination, it is likely to fail of its purpose. That purpose is the systematic putting down of certain notorious pests, the existence of which entails serious loss to the agricultural and horticultural community. To give successful effect to this purpose, the order must gain not only the acquiescence of the grower as a law-abiding citizen, but his enthusiastic support. But such support can hardly be expected if the order entails frequent destruction of crops, haggling over compensation and waste of time in correspondence.

When it follows that inspection must precede and not be subsequent to the outbreak. In other words, if a number of local officers are to be appointed, it must not be their function to wait till the crimes of the pests are notorious before proceeding to the arrest of the offenders; but rather to perambulate the country, to so gain the confidence of the growers that their visits are welcome and not regarded as intrusions, and to systematically advise the growers as to the means to be adopted to prevent the advent of the scheduled and other pests.

This is what we mean by sympathetic application of the order. Our reason for urging that it be applied gradually is that the inspectors will have to learn their business. For our part, we doubt whether there are 20 men in the country who could identify unerringly the 16 pests mentioned in the schedule. We cannot achieve knowledge by an order of the Board, and here, as so often is the case, we must educate our masters—in other words, we must train our inspectors. The simplest way in which this can be done is by giving them a definite status in local institutions with

agricultural and horticultural departments where they may bring their material for examination, and where they may carry out investigations in respect to the pests with which the locality is infested, with the object of arriving at the best means of prevention and extermination. Certain authorities have begun work on these lines, and among them the Berkshire County Council, in connection with the Agricultural and Horticultural Department of University College, Reading, and though it is too early yet to review the results, we may look forward with confidence to success attending the scheme. Subject, therefore, to its intelligent application, the order is to be welcomed as a step toward the systematic control of plant-disease.

OUR SUPPLEMENTARY ILLUSTRATION.—How fully entitled to notice is the specimen of *Hechtia argentea* represented in the Supplementary Illustration is shown in the following letter from our valued correspondent W. W.:—"There is no accounting for Fashion. She has, for example, implanted in the heart of the public an indifference to, if not a downright dislike for, Bromeliads. People like the Pineapple, but only because it is good to eat, and its variegated form receives attention now and then. But who among Britishers knows anything about *Billbergia*, *Tillandsia*, *Vriesia*, *Echmea*, *Pitcairnia*, or the many other genera of the order? There is a large collection of them at Kew, but they might just as well be in Honolulu so far as British horticulturists are concerned. Yet many of them have handsome foliage and beautiful flowers, highly-coloured in some cases almost to the point of gaudiness. Their time may perhaps come when Orchids go out of fashion, that is, if indoor gardening is not to be neglected entirely, as some people declare it will be. The specimen of *Hechtia argentea* now figured has exceptional claims to notice. It is the only example known in the world, and it has lived for at least 40 years in the Cactus house at Kew. It is supposed to be a native of Mexico, but no collector has ever seen it there, nor do we know how it got to Kew. Mr. BAKER says the first notice he could find of the plant was that Mr. BEAUCARNE showed it at the International Horticultural Exhibition at Brussels in 1864. No doubt this is that same plant, still flourishing at Kew 46 years after it appeared at Brussels. It has flowered a few times, but the flowers, being sub-unisexual, they have never produced seeds, and as the plant does not develop off-sets, it cannot be propagated. The leaves are about 2 feet long, stiff almost as steel, silvery on both surfaces; the margins clothed with stout, hooked, yellow prickles. The flower-spike is about 3 feet long, and the small, white flowers are in globose clusters, set about an inch apart on the upper portion. All the seven species of *Hechtia* are Mexican, and Mr. BAKER says they require cool treatment in cultivation, like *Dyckia* and *Rhodostachys*. Has anyone ever tried a *Hechtia* under other conditions than those of a tropical house?"

THE GLADIOLUS.—A determined effort is being made to boom this flower in America. It is termed the Twentieth Century flower, and there is no doubt it is attracting much attention. A convention of Gladiolus lovers has been summoned for May 27 at the Horticultural Hall, Boston, U.S.A., to establish a Gladiolus Society for America. Will the Gladiolus ever enjoy such widespread culture as the Sweet Pea is now given? It is certainly a flower with great possibilities.

FLOWERS IN SEASON.—Messrs. DOBBIE & Co., Edinburgh, have sent us a selection of varieties of Violas and Pansies. The selection includes all the leading kinds of fancy Pansies, and bedding and exhibition Violas. The size and substance of petal is remarkable, even for Pansies grown in Scotland.

—Some choice blooms of *Meconopsis integrifolia*, with bunches of Auriculas and fruiting sprays of *Cotoneaster Simonsii*, forwarded to us by Mr. JOHN EDWARDS, from the gardens of NOËL TURNER, Esq., Sylfarn Hall, Welshpool, are very beautiful.

NATIONAL DAHLIA SOCIETY.—This Society has arranged two exhibitions for 1910. The first will be held at the Crystal Palace on September 8 and 9, and the second at the Royal Botanic Gardens, Regent's Park, on September 20 and 21. In addition to these exhibitions, meetings will be held at the Royal Horticultural Society's Hall, Vincent Square, on September 13 and 27, for the purpose of awarding certificates to seedling Dahlias. Entries will be received by the honorary secretary, at the Horticultural Hall, before 10.45 a.m. on the morning of the show. A trial of single Dahlias will be undertaken in conjunction with Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex. Members desiring to send varieties should notify their intention to Mr. E. F. HAWES, Royal Botanic Gardens, Regent's Park. Two plants of each variety should be forwarded during the last week in May. Only recent novelties are required to be sent, as Messrs. CHEAL & SONS will plant a collection of the leading varieties for comparison. The proceedings of the Society during 1910, with the papers read at the conference, and a list of Dahlias, with selections for special purposes, is published in the *Annual Supplement and Conference Report, 1910*, edited by Mr. E. F. HAWES.

ROYAL GARDENERS' ORPHAN FUND.—The annual festival dinner, originally fixed for May 19, will, as announced in our last issue, take place on Thursday, the 26th inst. Although the change of date may cause some inconvenience, it is to be hoped that the cause of charity will not suffer. Rather in these times of National mourning should he look for greater sympathy on behalf of those who need help. Sir JEREMIAH COLMAN, Bart., will preside at the festival, and the following gentlemen, having consented to act as stewards, will be glad to receive subscriptions for the Chairman's list:—W. R. ALDERSON, Hersham Road, Walton-on-Thames; A. R. ALLAN, Hillingdon Court Gardens, Uxbridge; WILLIAM Y. BAKER, Thames Bank Iron Co., Upper Ground Street, London, S.E.; GEORGE H. BARR, 11, 12, 13, King Street, Covent Garden; W. BATES, Cross Deep, Twickenham; G. L. CASTLETON, Garden Superintendent, Crystal Palace, S.E.; GEORGE H. CUTHBERT, The Nurseries, Southgate, N.; WILLIAM H. CUTEUSH, The Nurseries, Barnet, Herts; C. DIXON, Holland House Gardens, Kensington, W.; W. HOWE, Park Hill Gardens, Streatham Common, S.W.; D. INGAMILLS, 27, Catherine Street, Covent Garden, W.C.; R. B. LEECH, The Cottage, Wood Hall, Dulwich, S.E.; JOHN LYNE, Foxbury Gardens, Chislehurst, Kent; H. B. MAX, Dyson's Lane Nursery, Upper Edmonton; J. F. McLEOD, Dover House Gardens, Roehampton, S.W.; J. W. MOORMAN, Superintendent, Victoria Park, E.; HAROLD G. MORRIS, 67, 68, Cheapside, E.C.; WHITPAINE NUTTING, 106, Southwark Street, S.E.; R. HOOPER PEARSON, "Bræwyn," Earlsfield Road, Wandsworth Common; WILLIAM POUPART, Marsh Farm, Twickenham; G. REYNOLDS, Gunnersbury Park Gardens, Acton, W.; E. ROCHFORD, Mill Lane Nurseries, Cheshunt;

T. W. SANDERS, 124, Embleton Road, Lewisham; EDWARD SHEERWOOD, 152, Houndsditch, E., Treasurer; DAVID W. THOMSON, 113, George Street, Edinburgh; W. P. THOMSON, 25, Bollo Lane, Chiswick, W.; HARRY J. VEITCH, V.M.H., Royal Exotic Nursery, Chelsea, S.W.; and H. L. WRIGHT, Fruit Market, Covent Garden, W.C. Last year was the 21st anniversary of the inauguration of the Charity, and owing to special efforts, a greater amount was raised than in any previous year. This should stimulate to even greater success in the future, and it is hoped that contributions during 1910 will constitute another record. The Secretary is Mr. BRIAN WYNNE, Milton House, Surrey Street, Strand, and he will be glad if those who accepted invitations for the 19th inst. will kindly inform him if they can be present on the 26th inst.

LEONARDSLEE GARDENS.—The gardens of Sir EDMUND LODER, Bart., at Leonardslee, Sussex, are now a delightful sight, the Rhododendrons, Magnolias, and other spring-flowering trees and shrubs being at their best. The gardens will be open for public inspection on Thursday, May 26, at a charge of 1s., and the proceeds will be given to the Wisborough Green branch of the West Sussex Benefit Nursing Association. Conveyances will meet the London and local trains for the convenience of those visiting Leonardslee, and tea will be obtainable in the gardens.

A RELIC OF THE "BEAGLE."—Amongst other interesting relics displayed by the Japan Society at the Japan-British Exhibition is a piece of H.M.S. "Beagle," in which CHARLES DARWIN made his celebrated voyage, and which was afterwards purchased by the Japanese Navy and renamed the "Kenko Kwan." It was on this ship that many of Japan's most distinguished naval officers received their early training. The painting on this relic is a copy of a picture of the "Beagle," and the signatures are those of Baron Admiral SAITO, the Japanese Naval Minister, and Admiral Togo.

FLOWERS AT BATTERSEA PARK.—The flower beds in the sub-tropical garden, the panel parterre and other parts in this popular park, are still gay with spring bulbs. In the sub-tropical garden some beds of *Azalea mollis* will be opening their flower-buds in a few days, and in one of them *Iris germanica* has been planted in the proportion of two plants of *Iris* to one *Azalea*; so that the experiment should prove a success in colour blending. Dwarf shrubs of *Rhododendrons* of the hybridum section are well-furnished with flower-buds, and the trusses are about to expand. Lilacs promise to give an abundance of bloom, but there are few of the newer varieties, and, as a consequence, the Lilac season is very short. A fine bed of Wallflowers, of a dark variety, in combination with a good scarlet Tulip, is very effective. These plants are as yet scarcely at their best. *Funkia ovata* variegata forms a capital edging to a group of *Rhododendrons*, and when the latter are in flower the effect should be good. *Anemone hortensis* in variety blends well with a red-flowered Tulip—apparently *T. Gesneriana*. Some beds of *Cineraria stellata*, mixed with ordinary greenhouse varieties, are making a good display, and they do not seem to have suffered from the unseasonable weather. Plants of *Cineraria stellata*, in some instances, are 3 feet in height, and strongly branched. *Narcissus Barrii* conspicuus, planted in a large bed, is showing thousands of its flowers. Tulip Couleur Cardinal, mixed with a light yellow Wallflower, is a telling combination, as are Tulip Van der Neer, and

a yellow and orange-coloured Polyanthus. Tulip Duchesse de Parma, a deep orange-flamed flower suffused with scarlet, makes an extra fine effect. A bed of *Azalea mollis*, mixed with *Cineraria stellata*, is also very showy; another of Tulip Proserpine, edged with white-flowered Arabis, and the central area planted with orange-coloured Tulips and dark-blue Hyacinths, arrests attention. Another pretty combination is La Belle Alliance Tulip, among thickly-planted yellow Wallflowers, and equally good is a group of *Narcissus Grand Monarch*, mixed with Polyanthus in a variety of colours.

A GARDENER'S LONG SERVICE.—Mr. EDWARD BUTLER has recently completed 50 years' service in the gardens at the Surrenden Estate, Pluckley. Mr. BUTLER, who occupies the position of head gardener, entered the gardens as a lad in 1860, and subsequently served under the late Sir HENRY DERING and the present baronet. At a dinner held in celebration of the event, Mr. and Mrs. BUTLER were presented with their portraits. A gold watch was also given to Mr. BUTLER. The Rev. Dr. SPRINGETT handed to Mr. BUTLER an album containing the names of the subscribers, and an illuminated address.

NEW WORK ON ROCK GARDENS.—Messrs. WILLIAMS & NORGATE will publish in the early summer a volume on *Rock Gardens, How to Make and Maintain Them*, by LEWIS MEREDITH. The book will be illustrated with diagrams and photographs, and will consist of more than 300 pages. The price will be 7s. 6d. net.

FREE SEEDS.—The seed trade in this country does not suffer by the distribution of free seeds as in America. It is stated officially that every year the Government distributes in the States something over 40,000,000 packets of garden and flower seeds. It may have been all very well when the country was young, and settlers found great difficulty in obtaining vegetable seeds for their new homes, to distribute free seeds in this way, but surely the necessity for such has long gone past in America. We believe the members of the legislature consider it one of their privileges to send these parcels to their constituents. They are sent with such little discrimination that tens of thousands of them, it is stated, are never even opened.

AMERICAN GOOSEBERRY - MILDEW.—The Board of Agriculture and Fisheries have received information that the summer stage of American Gooseberry-mildew (*Sphaerotheca mors uve*) was discovered in a Norfolk garden on May 12. All Gooseberry growers are advised to examine their bushes carefully, and should any sign of the disease be found, to spray their bushes with a solution of liver of sulphur (1 lb. to 32 gallons of water). A leaflet describing the disease and giving directions for dealing with it can be obtained from the Secretary, Board of Agriculture and Fisheries, Whitehall Place, London, S.W.

POTASSIUM SILICATE AS A FERTILISER.—Comparatively recently a new potassic fertiliser has been placed upon the market in the form of potassium silicate. It contains about 9½ per cent. of potash, and although insoluble in water, it is readily absorbed by the roots of plants. Potash silicate contains no salt or other chlorides, and in this respect would appear to possess some advantage over kainit and muriate of potash, the chlorides in which are sometimes found to act deleteriously on growing plants. Where a slow-acting and lasting source of potash is required, this new fertiliser is worthy of trial. Satisfactory results have been obtained in most cases where it has been tried in the garden and field.

ROYAL METEOROLOGICAL SOCIETY.—In consequence of the death of his Majesty King EDWARD VII., the meeting fixed for Wednesday, May 18, is postponed to Wednesday, May 25, 1910.

LINNEAN SOCIETY.—There is no meeting of this Society on the 25th inst. The announcement of such a meeting in last week's issue was an error.

INTERNATIONAL CONGRESS OF ROSE GROWERS.—The present year is marked by many important international horticultural gatherings on the Continent. In addition to those at Haarlem and Brussels, already described in these pages, both the spring and the autumn exhibitions of the National Horticultural Society of France are of an international character. In connection with the spring show, which takes place on the 25th to the 31st of the present month in Paris, there will be a congress of Rose growers, and similarly during the autumn show of the same society, which will be held from the 4th to the 13th November, a Chrysanthemum Congress will take place. In regard to the Rose congress, we have received the programme of the festivities, receptions and excursions which have been organised for the benefit of the jury, members of congress and of the National Horticultural Society. Briefly stated, the arrangements are as follow:—On Wednesday, May 25, invitation to the opening of the International Horticultural Show by the President of the French Republic at 10.30 a.m. At mid-day a luncheon will be given to the jury at the famous Ledoyen Restaurant, Champs Elysees. At 9.30 p.m. there will be a reception and soirée in the hall of the National Horticultural Society of France, given by the Commercial Union of Nurserymen and Seedsmen of France. On Thursday, May 26, the first meeting of the congress will be held at the Society's Hall, 84, Rue de Grenelle, Paris, at 9 a.m., the chair being taken by M. VIGER. At 4.30 p.m. there will be an official reception at the Hotel de Ville by the Municipality of Paris. At 7.30 p.m. the National Horticultural Society of France will give a banquet to the jury at the Hotel Continental, No. 3, Rue Castiglione. On Friday, May 27, at 8.15 a.m., the jury and the members of the congress will proceed in carriages to the Roseraie de l'Hay. Later in the day visits will be paid to the nurseries of M. NOMBLOT-BRUNEAU; Messrs. VILMORIN, ANDRIEUX & Co., at Verrieres-le-Buisson, and Messrs. CROUX & Son, at Val d'Aulnay. On Saturday, May 28, at 8 a.m., the company will meet at the show entrance near the Pont des Invalides. There will be a carriage excursion to Versailles via the Champs Elysees and Bois de Boulogne. At 9 a.m. a visit will be made to the Roseraie de Bagatelle. The party will visit the National School of Horticulture, and at mid-day will be entertained at luncheon by the Horticultural Society of Seine-et-Oise and the nurserymen of Versailles. Afterwards a visit will be made to the Trianons, and later to the nurseries of Messrs. TRUFFAUT & SONS and MOSER & SONS. Further particulars as to the congresses may be obtained of the Secretary, 84, Rue de Grenelle, Paris.

MISS ELLA DU CANE'S PAINTINGS.—A series of paintings in watercolours by this distinguished artist, representing plants and scenery in the Madeira Islands, is on view until the 28th inst. in the gallery of the Fine Art Society, New Bond Street, London. The drawings are of a high order of merit, and the colours true to nature. At Madeira, calm weather is a rarity, and, in consequence, gardens hide themselves behind stone walls, which give a marked feature to

the scenery. It was somewhat of a revelation to note the size to which plants of Plumbago capensis grow at the Quinta Miramar, and examples of Poinsettia pulcherrima are shown 20 feet in height, covered with fine scarlet bracts. There are several pictures of Magnolia conspicua in flower, with, in one case, mop-headed trees of Pinus pinea. Bignonia (Tecoma) radicans and B. r. sanguinea occur again and again in the pictures, and the plants are invariably flowering splendidly. There are shown several instances of Bignonia, purple Bougainvillea, and Wistaria japonica, supported on a rough Fir pole stretched horizontally between two upright ones sunk in the soil. The pergolas, too, consist of similar simple contrivances. A Bignonia in full flower at Quinta Miramar provides a wonderful sight. Some of the pictures are unnamed, and not to be distinguished because of their impressionist character; these include one with a yellow creeper, probably Hibbertia dentata, over a doorway of a chapel. Wistaria japonica, in the vicinity of a Codium with multi-coloured leaves, gives a wonderfully fine effect, the Codium being in a large pot. A group of plants of Senecio opulifolia, growing among rocks, showed what an effective plant this species is when growing out-of-doors. A mass of red-flowered Aloës are shown growing finely just out of reach of the sea. Indian Azaleas, grown in pots, arranged about in the small, paved courtyards, are wonderful pictures of floriferousness. The blue Morning Glory (Ipomoea), now so seldom grown in our gardens, is charmingly shown. Opuntias are represented in most of the pictures.

THE FEEDING HABITS OF THE ROOK.—In 1873 the well-known ornithologist, the Rev. F. O. MORRIS, gave the rook (*Corvus frugilegus*) a glowing testimonial with respect to its feeding habits, and on that testimonial the bird has lived ever since as a benefactor to the agriculturist. According to the estimate of this authority, a rook requires 1 lb. of food per week, and of this quantity nine-tenths consists of insects and worms. At this rate, he added, a rookery of 10,000 rooks consumes in one year 209 tons of worms, insects, and their larvæ. Mr. WALTER E. COLLINGE, who has been engaged during the past few years in reinvestigating this question, finds himself unable to endorse these conclusions. As the result of his inquiry, made on behalf of the Council of the Land Agents' Society, and now published in pamphlet form, Mr. COLLINGE concludes that the rook at the present day has feeding habits very different in character from those which it possessed—or was reputed to possess—in 1873, when the Rev. F. O. MORRIS sung its praises as a destroyer of insects. The results of examination of the food in the gizzards of some 631 rooks showed that 70 per cent. of the food consisted of grain, 15 per cent. of seeds, fruits, and other vegetable matter; of the remaining 15 per cent., 4 per cent. consisted of wireworms, 4 per cent. of other insects (mostly injurious), 2 per cent. of earthworms, and 4 per cent. of oddments. Mr. COLLINGE concludes, in agreement with other authorities, that the rook is no particular friend of the agriculturist, and that the ravages for which it is responsible are to be attributed to the fact that the birds are too numerous. He, therefore, recommends that the numbers be kept within bounds.

ON THE WANING OF WEISMANNISM.—Under the above title, Mr. G. F. SCOTT-ELLIOTT, writing in the *Journal of the Royal Horticultural Society* (Vol. 35, Part III.), sets out to demonstrate that the characters acquired during the life of an individual are transmitted to its descendants. The writer does not bring forward any new facts in support of his contention, and his arguments do not appear to be

conclusive. Thus, he points to the fact, which, of course, we are not prepared to dispute, that Oats have been improved by breeding from the largest and best grains. Why, however, the original "largest and best" grains are to be regarded as the result of environment and not of inheritance he does not say. Again, he quotes KLEB's account of the conversion of blue Campanulas to white by changed conditions of cultivation. We are inclined to think that Mr. SCOTT-ELLIOTT would not be prepared to guarantee that such white plants would come true to seed. As everyone who breeds plants knows, the colours of individual flowers are very readily modified by external conditions. Under certain conditions of temperature, some strains of white *Primula sinensis* may develop a pink hue. Such phenomena, however, have nothing whatever to do with inheritance of acquired characters. The factors which determine the ultimate colour of the flower occur in the plant, are transmitted from generation to generation, and external circumstances, temperature, light, &c., act—and then only in certain cases—by permitting one colour-factor to exert an influence which, in other circumstances, it does not exert. We do not think that Mr. SCOTT-ELLIOTT's contribution to this difficult subject will modify the views of anyone who has a first-hand knowledge of the facts of heredity.

PORTRAIT OF A NURSERYMAN.—At the Exhibition of Paintings, now on view at Burlington House, there is a striking portrait of Mr. WILLIAM KELWAY, senior partner in the firm of Messrs. KELWAY & SON, Langport. It is by HAROLD KNIGHT, and has a prominent position on the line. As a work of art, the portrait is excellent.

PUBLICATIONS RECEIVED.—*A White-Paper Garden*, by Sara Andrew Shafer. (London: Methuen & Co., Ltd.) Price 7s. 6d.—*British Floral Decoration*, by R. Forester Felton. (London: Adam & Charles Black.) Price 7s. 6d.—*Alpine Flowers and Gardens*, painted and described by G. Flemwell. (London: A. & C. Black.) Price 7s. 6d. net.—*Bulletin of Miscellaneous Information*, Royal Botanic Gardens, Kew. Contents: Catalogue of the Library, additions received during 1909. (London: Printed for His Majesty's Stationary Office by Darling & Son, Ltd.) Price 3d.—*Schlich's Manual of Forestry*, Vol. II., by Sir Wm. Schlich, Fourth Edition, revised. (London: Bradbury, Agnew & Co., Ltd., 10, Bouverie Street.) Price 9s.—*The Agricultural Journal of the Cape of Good Hope*. April. (Cape Town: Cape Times, Ltd. Price 6d.—*United States Department of Agriculture*, Bureau of Plant Industry: Some Conditions Influencing the Yield of Hops, by W. W. Stockberger and James Thompson; Seeds and Plants Imported, Bureau of Entomology: A Predaceous Mite Proves Noxious to Man, by F. M. Webster. (Washington: Government Printing Office).—*New Hampshire Agricultural Experiment Station*. Department of Chemistry: Analyses of Fertilisers, by B. E. Curry; The Availability of the Soil Potash in Clay and Clay Loam Soils, by F. W. Morse and B. E. Berry; Analyses of Feeding Stuffs, by F. W. Morse and B. E. Curry. Department of Entomology: The Codling Moth, and How to Control It By Spraying, by E. Dwight Sanderson. Department of Botany: Some Apple Diseases, by Charles Brooks. Department of Agronomy: Variety Tests of Oats, Barley, Wheat, and Rye, by F. W. Taylor. (Durham, N. H. New Hampshire College of Agriculture and Mechanic Arts).—*Southern California Acclimatising Association*, Santa Barbara, California, U.S.A., Seed Exchange List.—*Present Day Gardening*. A series with coloured plates from photographs. Edited by R. Hooper Pearson. Vol. I., Sweet Peas, by Horace J. Wright; Vol. II., Pansies, Violas, and Violets, by William Cuthbertson. (London and Edinburgh: Messrs. T. C. and E. C. Jack.) Price 1s. 6d. each volume.

WINDOW-BOXES.

MANY a dull-looking building may be beautified by window-boxes, even when the aspect is one facing to the north. In such a case the boxes should be filled with the plants and stood in a south aspect exposed to the sunshine. In this position the plants will soon come into flower; then the boxes should be moved to the windows, and the plants will make a good show throughout the summer months.

In one of the Royal gardens where I was once employed for some years, this system was practised with great success, a long range of garden

Those who know the Piccadilly thoroughfare in London will call to mind the gorgeous display of flowers provided every summer on a balcony of a house between Hamilton Place and Hyde Park Corner. A few years ago I assisted to plant and tend them, and the material used was a background of white Marguerites with Ivy-leaved Pelargoniums planted in the front. The variety of Pelargonium employed was named "Gallilee," and very pretty it looked hanging down between the stone balustrading of the balcony.

Other subjects suitable for window-boxes are Rhodanthes, the yellow, shrubby Calceolarias, Fuchsias, and Zonal Pelargoniums. It is a good

Calceolarias, or similar plants, and they continue flowering very freely throughout the summer.

In the autumn, if desired, the boxes may be filled with Wallflowers, or shrubs, such as Euonymus and Veronica, to furnish them for the winter months; while for an early spring show, yellow Genistas are largely employed for the purpose in London.

Plenty of water must be afforded the plants after they are established, while an occasional application of some approved fertiliser will be beneficial. *Wilmot H. Yates, Rotherfield Park Gardens, Hants.*

FORESTRY.**THE EFFECT OF GALES.**

THE recent gales must have a very serious effect on all newly-planted Conifers unless prompt attention is paid to them, for, in many instances, the young roots have been broken, and the plants, being loose, are left to sway about in the wind. The ground about them should be trodden firmly, holding the tree in an erect position during this operation. In cases where a stake is needed, this should be afforded at once. Much wonder is frequently expressed in regard to newly-planted trees failing to grow, but the cause is often attributable to the looseness of the roots in the soil. Nothing is more dangerous to the life of the plant than allowing them to sway about, as the roots cannot attach themselves to the new soil under such conditions. The damage occurs more frequently on heavy than light soil, for the plant, in its movement, wedges the soil firmly together, and very soon a large hole is formed round the stem. On light soil the movement of the plant generally causes the soil to crumble, and no hole can be formed.

THE RABBIT PEST.

Two plantations of Larch were planted on this estate 26 years ago. At the time of planting, one plantation was wired in, to prevent rabbits gnawing them; in the other case the trees were lightly tarred for the same purpose, and, curious to note, while those that were wired in were badly attacked with this pest, those that were tarred were not touched, and are not at the present time. The plantations are within 150 yards of each other. I mention this incident because it would be interesting to know if anyone else has experienced the same thing.

SELLING OF UNDERWOOD.

Foresters who have sold the underwood in the coverts, should inform the purchaser that he must have his purchases removed within the next fortnight. Now that the Hazel will begin to start into growth, this matter should be given attention, as its neglect may cause a gappy covert, which means much endless trouble in the future. *A. Gooding, Eartham, (Hitchester).*

CŒLOGYNE LAWRENCEANA.

THIS beautiful species was found wild in An-nam by Mr. W. Micholitz whilst collecting for Messrs. Sander & Sons. The plant was first described by Mr. R. A. Rolfe in *Gardeners' Chronicle*, April 15, 1905, p. 227, and one of the first specimens which flowered in this country was shown by Sir Trevor Lawrence, Bart., at a meeting of the Royal Horticultural Society on March 28, 1905, when the Orchid Committee gave it an Award of Merit. The plant produces its flower-scapes from the top of the mature pseudo-bulbs, and its handsome flowers have greenish-yellow sepals and petals, the latter being slightly tinged with brown. The front of the lip is pure white, and through the centre of this organ is a pale yellow band reaching to the disc; the disc has three fimbriate keels, which extend to the base.



[Photograph by C. P. Raffill.]

FIG. 143.—CŒLOGYNE LAWRENCEANA.

offices, such as stoke-holds, tool sheds, &c., facing north, being made to look very attractive throughout the summer months while the Court was in residence.

The boxes should be made to fit the window frames easily, and, as window sills are usually sloping, two wedge-shaped "feet" should be fixed to the bottom of the boxes to ensure the boxes standing level, this being necessary for watering purposes. If the fronts of the boxes are painted green, this colour will harmonise well with the plants. There are many plants suitable for growing in window-boxes, and the season has now arrived for planting them.

plan when arranging the plants to introduce a plant or two of Heliotrope, Mignonette, or scented-leaved Pelargonium into the back of the box, as the scent from these will pervade the room when the windows are opened. Plants of a creeping nature should be placed in the front, such as Nasturtiums, both double and single-flowered varieties, and Ivy-leaved Pelargoniums. These will quickly establish themselves and cover the whole front of the box.

At Rotherfield we utilise our old plants of winter-flowering Pelargoniums for the window-boxes, and most useful they are for the purpose when associated with white Marguerites, yellow

HORTICULTURE AND THE DEVELOPMENT ACT, 1909.

HORTICULTURISTS have had ample reason to complain in the past that Parliament has done little to encourage their industry, though usually careful to recognise its existence when the question of imposing additional burdens has come up for consideration. It is refreshing, therefore, to find that, for the purposes of the Development Act, 1909, horticulture is recognised as having claims equal, at least in principle, to those of agriculture.

DEVELOPMENT OF INDUSTRIES.

The Act in question is intended to provide certain machinery for aiding and developing—

- (a) Agriculture and rural industries;
- (b) Forestry;
- (c) the reclamation and drainage of land;
- (d) the general improvement of rural transport (which includes light railways);
- (e) the construction and improvement of harbours and inland navigations;
- (f) the development and improvement of fisheries; and
- (g) any other object "calculated to promote the economic development of the United Kingdom."

The expression "agriculture and rural industries," used in Clause (a) above, includes agriculture, horticulture, dairying, the breeding of horses, cattle and other live-stock and poultry, the cultivation of bees, home and cottage industries, the cultivation and preparation of Flax, the cultivation and manufacture of Tobacco, and any industries connected with these pursuits.

The assistance to be rendered to agriculture, horticulture, and the other rural industries above defined is, however, limited in extent, and small growers who hope for individual assistance from the State in this connection are doomed to disappointment. The nature of the assistance to be rendered under the Act includes, however:—

- (1) The promotion of scientific research, instruction and experiments in the science, methods and practice of the industries in question;

- (2) The organisation of co-operation;

- (3) Instruction in marketing produce (which, presumably, includes packing and grading); and

- (4) The extension of the provision of small holdings. In this connection the Act is not clear as to how the overlapping of powers already possessed by local authorities is to be avoided, especially as the terms and conditions of the Small Holdings and Allotment Act, 1908, are not to be departed from by the Development Commissioners, except for some special reason to be stated by them in their annual report.

The assistance to be rendered takes the form of a monetary advance, to be made, either by way of gift or loan, by the Treasury, on the recommendation of a body of persons to be known as the Development Commissioners. Advances may be made either (a) to a Government Department, or (b) through a Government Department to a public authority, university, college, school, or institution, or an association of persons or company not trading for profit. Applications for an advance by any body of persons must be made, in the first instance, to the Treasury. The application will then be sent on to the Government Department concerned, who, in turn, will refer it, together with their official report on the subject, to the Development Commissioners. In the case of horticulture, the Government Department concerned would, in most cases, be the Board of Agriculture and Fisheries.

DEVELOPMENT FUNDS.

It will be observed that the ground to be covered by the scheme outlined above is very wide, and, if practical progress is to be made,

considerable funds will be needed. For the present, a sum of £500,000 a year is to be allocated for the ensuing five years, thus furnishing a total fund of 2½ million pounds, together with any interest or profit which may result from the loan or investment of the capital money. Power is reserved for Parliament to provide further funds in the future, if thought fit, and the Treasury is also empowered to accept gifts to be devoted to all or any of the above purposes. Presumably, however, wealthy persons interested in horticulture will prefer, as heretofore, to make their gifts (either by will or during their lifetime) direct to those societies which already watch over the interests of horticulture, rather than to a body of officials whose attention will necessarily be claimed by so many diverse, and sometimes conflicting, interests.

The Commissioners have power to create a staff of salaried officers and servants, as well as to appoint advisory committees. It is understood that several well-known scientists have already been invited to join these advisory committees, and correspondence on the same subject has also taken place with various learned and scientific societies. So far as horticulture is concerned, it is to be hoped that a sufficient proportion of practical men in the trade may also be invited to act on these advisory committees, in order that their views may receive due weight.

THE HORTICULTURAL GRANT.

From the list of objects set out at the commencement of this article, it will be seen that the Commissioners have a very wide range to cover in apportioning the 2½ million pounds among those



FIG. 144.—NARCISSUS COOKSONIÆ: A LEEDSII VARIETY, COLOUR CREAMY-WHITE.

(Received an Award of Merit at R.H.S. meeting on May 3.)

THE DEVELOPMENT COMMISSIONERS.

The development funds are to be administered by a new body, to be called the Development Commissioners, two of whom may be paid salaries not exceeding in the aggregate £3,000 per annum. The Commissioners will hold office for 10 years, but one Commissioner must retire every second year, though he may be reappointed. The *London Gazette* of Friday last notifies the appointment of the first Commissioners as follow:—(1) Mr. Henry Jones Davies, (2) Mr. Saint-Hill Eardley-Wilmot, C.I.E., (3) Mr. Michael Andrew Ennis, (4) Mr. Wm. Stowell Haldane, (5) Mr. Alfred Daniel Hall, F.R.S., (6) Mr. Sidney Webb, (7) Lord Richard Frederick Cavendish, and (8) Sir Francis Hopwood.

who may put forward schemes for their consideration. The Act gives no directions as to the proportion to be distributed in any direction, and the Commissioners are likely to have a delicate task in sifting the conflicting applications of those who respectively urge the claims of agriculture, horticulture, rural industries, afforestation, inland navigation, light railways, fisheries, and local harbours. The Commissioners will naturally be guided to a considerable extent by the weight of evidence laid before them, and those interested in English industries will doubtless do well to bear in mind that the representatives of Scotland and Ireland may be relied upon to show their usual energy and patriotism in urging the paramount claims of their respective sections of the

United Kingdom. It is reasonable to anticipate that, among all the claimants for consideration, those will meet with most success who (1) put forward a definite scheme, (2) present such scheme at the earliest possible moment, (3) give a definite estimate of the approximate cost, and (4) show a persistence commensurate with their enthusiasm for the cause which they have at heart!

The representatives of horticulture will, fortunately, have little difficulty in presenting a claim for favourable consideration on the merits of their case. The refining and civilising effect of a love of horticulture is a matter well worthy of the closer attention of those political leaders on both sides who desire to uplift the mental and moral standard of the masses, while the successful cultivation of fruit and vegetables on English soil is intimately bound up with many of the most pressing questions of the day. The food supply of the nation, rural depopulation, the consequent overcrowding in large towns, the increasing problem of unemployment, the alleged decline in national stamina and physique—all these are matters intimately associated with those schemes which are summed up somewhat vaguely in the cry of "Back to the land!" It is useless, however, to tempt workers back to the land if, on arrival, they are to be faced with starvation; and much remains to be done before horticulture in all its branches can hope to offer its proper quota towards an adequate solution of the problems referred to.

Certainly the prospects of horticulture as a means of livelihood during recent years have been the reverse of encouraging. Faced with increasing competition at home and abroad, subjected by nature to special risks of attack from pests and plant disease, liable to be called upon to burn and destroy for the public welfare, the whole of growing stock in return for only partial compensation, harassed by emissaries of the Pharmaceutical Society, who seek to recover penalties for even technical infringements of the Poisons and Pharmacy Act, singled out (jointly with agriculture), as the only industry which is liable (in addition to all other rates and taxes) to pay an "undeveloped land tax" as the price of cultivating the soil in urban districts, and now deprived of one-fifth of any future increase in the building value of their land, although such land be simultaneously decreased in value for horticultural purposes by the ever-advancing forests of soot-laden chimneys—the lot of the present-day grower is scarcely an enviable one, and surely the time has arrived for the State to turn the other side of the shield and to assist, in so far as money can assist, an industry which, if rightly encouraged, should benefit many and can injure none.

Whether the Development Act furnishes the key to even a partial solution of the problem is a matter on which opinions will necessarily differ; but even those who may doubt the efficacy of the remedy offered will be glad to give it a fair trial, and will spare no effort to enable the Act to achieve a good measure of success, provided the Development Commissioners will ensure that the experiment shall not be doomed to failure at the outset through lack of adequate financial assistance. *H. M. V.*

TWO NEW NARCISSI.

Very few awards have been made this year by the Narcissus Committee of the Royal Horticultural Society to new varieties. In the small number of successful novelties the varieties *Cooksoniæ* and *Colleen* are included, for they both were given Awards of Merit at the meeting held on May 3.

N. Cooksoniæ (see fig. 144) is a creamy-white-flowered variety of the *Leedsii* type, and was raised in Mrs. Norman Cookson's garden, Wylam-on-Tyne. *N. Colleen* (see fig. 145) has been described as one of the most distinct of modern varieties. It has a beautiful yellow crown, edged with deep primrose, and with base of deep green. The flowers are fragrant, like those of *N. poeticus*. *Colleen* was shown by Messrs. R. Wallace & Co., Colchester. We are indebted to Messrs. R. H. Bath, Ltd., Wisbech, for the photographs.

NEW PEST AND DISEASE ORDER.

THE Board of Agriculture and Fisheries, by virtue and in exercise of the powers vested in them under the Destructive Insects and Pests Acts, 1877 and 1907, have made the following Order:—

NOTIFICATION OF DISCOVERY OF INSECT OR PEST.

1.—(1) The occupier of any premises on which an insect or pest mentioned in the Schedule to this Order exists, shall forthwith notify the fact, with particulars of the time and place of discovery to the officer appointed by the Local Authority to receive such notices, or, if no such officer has been appointed, to the Board; and,

that behalf by the Local Authority and any Inspector of the Board may, upon production if so required of his appointment or authority, enter any premises on which he has reason to believe that an insect or pest mentioned in the Schedule to this Order exists or has recently existed, and examine any plant, fruit, crop, seeds, tubers, bulbs, layers or cuttings on such premises.

ACTION TO BE TAKEN BY LOCAL AUTHORITY.

3.—(1) An inspector or other officer of the Local Authority or of the Board, acting under their direction, may at any time and from time to time by a notice served on an occupier of premises on which an insect or pest mentioned in the



FIG. 145.—NARCISSUS COLLEEN: PERIANTH, WHITE; CROWN, YELLOW WITH GREEN AT THE BASE.

(Received an Award of Merit at R.H.S. meeting on May 3.)

where practicable, a specimen of the insect or pest shall accompany the notice.

(2) An officer of a Local Authority who receives a notice under this Article shall forthwith report the fact to the Local Authority.

(3) The Local Authority on receiving in any manner notice of the existence or apparent existence of an insect or pest mentioned in the Schedule to this Order shall forthwith transmit the information to the Board and take such steps as may be necessary to determine to what extent the insect or pest exists.

POWERS OF ENTRY.

2.—An inspector or other officer appointed in

Schedule hereto exists or recently has existed, require him to adopt such measures for prevention of the spread of the insect or pest as are specified in the notice.

(2) Where a Local Authority have consented to pay compensation for such destruction, the notice under this Article may require the occupier of premises on which an insect or pest mentioned in the Schedule hereto exists or recently has existed, to destroy by burning or other effective method all or any of the plants, fruit, or crops on the premises, and the Local Authority shall pay compensation for such destruction subject and according to the provisions in that behalf of the Destructive Insects and Pests Acts, 1877, and 1907.

(3) A notice under this Article may prescribe the time within which the adoption of any measure thereby prescribed shall be completed.

(4) An occupier may appeal to the Board against a notice, served on him under this Article by an inspector or other officer of the Local Authority, and the Board may, after consultation with the Local Authority, cancel the notice or modify its requirements in such manner as the Board think fit.

(5) For the purposes of this Order a notice shall be deemed to be served on a person if it is delivered to him personally or left for him at his last known place of abode or business or sent through the post in a letter addressed to him there, and a notice or other document purporting to be signed by an inspector or other officer of a Local Authority or of the Board shall be *prima facie* evidence that it was signed by him acting under the directions of the Local Authority or the Board as the case may be.

PENALTY ON SALE OR USE FOR PLANTING OF DISEASED SEEDS, &c.

4.—Every person who shall knowingly use, or sell for use, for planting any plant, seed, tuber, bulb, layer or cutting attacked by an insect or pest mentioned in the Schedule to this Order, or any seed, tuber, bulb, layer or cutting which has been derived from a plant so attacked, and is capable of spreading the insect or pest, shall be liable on conviction to a penalty not exceeding £10.

PROHIBITION OR SALE OF SPECIMENS.

5.—It shall not be lawful, except with the written permission of the Board, to import, sell, or offer for sale a living specimen of any insect or pest mentioned in the Schedule to this Order.

PENALTIES.

6.—Every person shall be liable on conviction to a penalty not exceeding £10, who—

(1) Knowingly fails to give such notification as is required by Article 1 of this Order; or

(2) fails to adopt such measures for prevention of the spread of the disease as are specified in a notice served on him under this Order; or

(3) wilfully obstructs or impedes any inspector or other officer when acting under this Order; or

(4) imports, sells or offers for sale an insect or pest in contravention of this Order.

NOTIFICATION OF ORDER.

7.—This Order shall be published by the Local Authority in accordance with any direction given by the Board.

REVOCATION OF ORDER.

8.—The Destructive Insects and Pests Order of 1908 is hereby revoked.

EXECUTION OF THE ORDER.

9.—Each Local Authority shall carry into effect this Order within their district, and shall appoint such inspectors or other officers for that purpose as may be necessary.

DEFINITIONS.

10.—In this Order—

“The Board” means the Board of Agriculture and Fisheries;

“Local Authority” means a local authority having power to execute and enforce the Diseases of Animals Act, 1894; and “District” means the area in which the Local Authority has such power to act.

APPLICATION OF THE ORDER.

11.—This Order shall apply to Great Britain.

SHORT TITLE.

12.—This Order may be cited as the DESTRUCTIVE INSECTS AND PESTS ORDER OF 1910.

In witness whereof the Board of Agriculture and Fisheries have hereunto set their Official Seal this third day of May, nineteen hundred and ten.

T. H. MIDDLETON, Assistant Secretary.

SCHEDULE.

INSECTS AND PESTS TO WHICH THIS ORDER APPLIES.

The vine louse (*Phylloxera vastatrix*, Planchon).

The San José scale (*Aspidiotus perniciosus*, Comstock).

The Mediterranean fruit fly (*Ceratitis capitata*, Wiedemann).

The Colorado beetle (*Doryphora decemlineata*, Say).

The large Larch sawfly (*Nematus erichsonii*, Hartig).

The Potato moth (*Lita solanella*, Boisduval).

The gipsy moth (*Liparis [Ocneria] dispar*, Linné).

The brown tail moth (*Euproctis chrysorrhœa*, Linné).

The nun moth (*Liparis monacha*, Linné).

The Cherry fly (*Rhagoletis cerasi*, Linné).

The Narcissus fly (*Merodon equestris*, Fabricius).

Black knot (*Plowrightia morbosa*, Saccardo).

Wart disease or black scab of Potatoes (*Synchytrium endobioticum*, Percival).

Tomato leaf-spot (*Septoria lycopersici*, Spegazzini).

Melon or Cucumber canker (*Mycosphaerella citrullina*, Grossenbacher).

American Pear blight (*Micrococcus amylovorus*, Burrell).

Copies of the above Order can be obtained on application to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

PRUNING NEWLY-PLANTED TREES.—

W. P. R.'s remarks on this subject (p. 295) are reasonable and practical. I once had occasion to substitute disbudding for pruning in the case of strong-growing young vines where bleeding, if pruned, was anticipated. Long experience has taught me that if the gross, central shoots of Peach and other fan-trained trees were left their full length, and were not bent in the direction of the ground from a point within 6 or 8 inches of their origin, to check the flow of sap, as advised at p. 284, wood-buds would push from the ends, instead of from the bases, of the individual shoots. The weaker and more even-sized shoots situated on either side of the strong, central growths, require no such treatment; but where the building-up of a well-furnished, fruitful tree within as short a time as possible is desired, it is absolutely necessary to treat the unduly strong, central shoots in the manner I recommended. H. W. W.

FERTILISATION OF MELONS AND CUCUMBERS

(see p. 295).—The statement that a Cucumber does not develop unless it is “pollinated” is emphatically wrong, but no unfertilised Cucumber, no matter how long it may be allowed to remain on the plant, will be found to contain fertile seed. H. W. W.

BREEDING FOR TIMBER.—

There is an important point in connection with this most interesting question, to which I desire to call the attention of those who may be disposed to follow it up, as it was not alluded to in Dr. Henry's most valuable lecture (see pp. 257, 276). This is the influence of the stock. The Elms propagated by nurserymen for many years past have been budded, usually and preferably on the Wych Elm stock, because of its vigour and freedom from suckers, but often, I fear, on stocks of foreign seedlings imported as *U. campestris*. These, so far as my observations at home and abroad have gone, are usually, if not always, of a very inferior strain as regards size, habit and timber, to the variety which for centuries has reproduced itself by suckers alone in the hedgerows of Oxford, Berks, Wiltshire, Gloucester, Worcester, Hereford and Somerset; in which counties it seems to attain its greatest perfection. I have never seen trees of the Huntingdon or English Elm, as sold by nurserymen, which equal these in habit or timber, though they are no doubt more easily and quickly propagated than from layers or suckers. In the cases of the Bat Willow and so-called Italian Black Poplar, which have always been propagated by cuttings only; the good quality of the parents, believed by Dr. Henry to be first crosses, have been reproduced. In the Elms we have lost, owing, as I believe, to the influence of the stock, more

than we have gained. Now, if we succeed in raising from first crosses between the English and American Ash; a tree as superior in vigour to its parents, as the first cross between the European and American Black Walnut seems to be, we shall not be able to reproduce it true, except by budding or grafting, which in the Ash, rarely if ever produces a really fine tree from a timber point of view. We have in the Lucombe Oak, proof that the seedlings of the first cross vary much, and are usually, perhaps always, inferior to the original Lucombe Oak, which, as first propagated by Lucombe, who grafted it close to the ground on a stock of its most vigorous parent, the Turkey Oak; has become in its own district a magnificent tree. I have seen several instances amongst Conifers where grafting on stocks suitable to the soil and climate has produced remarkably good results; but timber trees grown for profit will have to be on their own roots, and, if not seedlings, propagated as usual with the Limes and Planes by layering. Cambridge has taken the lead in agriculture, where important results in the production of new kinds of Wheats have been already obtained by Professor Biffen. Similar investigations in the production of new kinds of trees will undoubtedly be now carried on at the Forestry School, Cambridge, where Dr. Henry has established an experimental plot for this purpose. I trust that the work in forestry at our great scientific University will receive from landowners and others interested in planting in this country the same generous support as they have already given to agricultural research in that institution. H. J. Elwes, Colesborne.

OUTDOOR GARDENING.—

Under this heading (p. 295), J. O. B. declares that young gardeners are too much wrapped up in the “blue apron and Orchid-house side” of their profession. I venture to suggest that we journeymen are not entirely at fault, and that many would rather have a more general experience than it is possible to acquire under present-day conditions. How many head gardeners in want of a journeyman would entertain an application from someone who lacked knowledge of the particular department for which he was required? In order to take over a “charge,” whether it be inside or out-of-doors, a young man must have held a position in a similar department, and, in his endeavour to secure a post, he confines himself to one branch, not that he is desirous of doing so, but because circumstance compels him. It has often occurred to me that men who have served in large places are generally engaged as head gardeners in preference to those who have gained their experience in smaller ones, though perhaps the latter possess a more varied knowledge of gardening. Preference is invariably given to those who have had good indoor experience; but seldom do gardeners who have confined themselves to kitchen garden and pleasure ground work secure a high position. From a gardening standpoint, one department is equally as important as the other, and I think young men would not shun out-door work if head gardeners would give them employment indoors afterwards. *Journeyman.*

It seems too true that many young gardeners consider it the height of their ambition to take charge of the glass department, believing that the fact that they have done so is a certain passport to a post as head gardener. Certainly they should see that they have a full knowledge of cultivation under glass; but the increased importance of outdoor gardening within recent years should be apparent to all who have followed the trend of modern horticulture. There is a tendency in many private gardens to restrict glass cultivation as far as possible, and to develop the outdoor garden to a much greater extent than formerly. It is saddening to come across so many men with only the most rudimentary knowledge of outdoor plants. They have not studied the principles which underlie true landscape gardening and its practice, and are often almost helpless when called upon to superintend outside alterations. There are many who have felt the difficulty experienced by J. O. B. in obtaining men who can take charge of laying-out a garden, or in making extensive alterations, as well as planting properly and tastefully. Young men would study their own interests were they to take up such subjects more seriously. A.

LAUREL LEAVES AS AN INSECTICIDE.—In the correspondence which has taken place on this subject, no one has mentioned the fact that care is needed in choosing the right variety. To avoid disappointment, I may mention that it is the old-fashioned common Laurel which gives off prussic acid when bruised. The modern kinds, *rotundifolia*, *latifolia*, and *caucasica*, which are driving the old variety out of cultivation, owing to their greater hardiness and more distinctive character, have little toxic character, and I remember years ago being amused at the disgust of an entomologist who had been raiding the nursery for moth-killing material, at finding the insects, which should have been stupefied, battering themselves to pieces in his killing-pots. *Chas. E. Pearson, Lowdham Nursery.*

RHODODENDRON VEITCHIANUM.—I send you a flower of a greenhouse Rhododendron, which was bought from the late firm of Messrs. Rollinson & Sons, Tooting, about 50 years ago, under the name of *R. Veitchii*. The original plant died about four years ago, but I grafted some plants from it in the previous year. All visitors admire it on account of its beautiful fringed edges. We have another Rhododendron under the same name, but it is altogether different, there being no fringe or shade on the petals. *T. A. G.* [The flowers are those of true *R. Veitchianum*, which was introduced from Moulmieu by Messrs. J. Veitch & Sons and exhibited by them for the first time in May, 1857. It is not uncommon in collections; Messrs. Veitch and Sons exhibited plants of it in flower in May last year, and there are good examples in the temperate house at Kew, where it blooms annually. The other plant you mention is probably *R. formosum*.—*Eos.*]

EXHIBITION VEGETABLE CULTURE.—As one who takes much interest in the production of good vegetables, and in vegetable exhibitions, I was naturally much interested in the remarks by *Practical* printed on p. 296. In the first place, those remarks appear to imply that the practice of exhibiting vegetables frequently causes an unpleasantness between the employer and employee. Though this may occur in a few cases, I venture to say there is far more unpleasantness caused at the dinner table by the vegetables produced at a friend's party, whether the grower be an exhibitor or not, than from any cases of exhibiting. I am conversant with many establishments where vegetables are produced in very large quantities by artificial means, and where the gardener never exhibits. *Practical* says in vegetable culture for exhibition there must be more artificial treatment than in any other process of horticulture. Let me point out that it matters not whether it be fruit, flowers or vegetables, or whether these are cultivated for exhibition or not, if they are to attain to the highest state of perfection they must be given special care. *Practical* specially mentions fruit-culture for exhibition in support of his argument, stating that the same treatment is accorded to a Peach tree from which the show fruits are gathered as to the tree that produces the ordinary crop for the table. But is this the case? He somewhat qualifies his remarks in relation to Grape culture, and well he might, but the same applies to other kinds of fruits, as Apples, Pears, and Plums cultivated in the open, as well as Chrysanthemums, Carnations, Sweet Peas, and Roses. If so much extra expense is required for the production of exhibition vegetables, how is it, may I ask, that such excellent produce is exhibited at the majority of local shows throughout the country, both by amateurs and cottagers? These exhibits are frequently the produce of men with large families, and who work at their ordinary occupation during the day, doing their gardening both early and late. I have never known an exhibitor of vegetables who was not capable of supplying, as far as circumstances allow, a constant supply of good produce for his employer's table. *Practical* says a casual, or even a regular, visitor to a show does not understand the requirements necessary to produce examples of any kind of vegetable fine enough to satisfy the expert judge, but he is ready to place the blame for his poor display at home to other causes. Well, the same remark applies to anything else. I am surprised to notice that *Practical*, in support of his argument, takes for an example Brussels Sprouts. He asks, who

does not prefer the small, hard, green, button-like Brussels Sprouts—produced from an imported strain, too—to the huge Cabbage-like knobs so broadly displayed by many exhibitors. Here let me state that all good exhibitors and the most practical judges prefer very firm Sprouts of small to medium size, to the larger specimens which are frequently produced from imported stocks. The most perfect Brussels Sprouts are to be obtained not from foreign countries, but from our leading seedsmen at home. Not only is this the case with Brussels Sprouts, but with nearly every other kind of vegetable, such as Carrots, Parsnips, Beet, Tomatos, Potatos, Turnips, Cucumbers, Vegetable Marrows, Cauliflowers, and Cabbage. Mere size is of little importance with present-day exhibitors of vegetables or with judges; but high-class quality is insisted upon. Not only is some land unsuited for the production of vegetables for exhibition, but also for their production for consumption, and naturally the land must be treated accordingly. *Practical* states that large pods of Peas are too often not filled, but I promise him he will not find unfilled pods in the best exhibits. He complains of the distance allowed between the seeds. I say without fear of contradiction that heavier crops and better quality are produced, both in Peas and Runner Beans, when the plants are allowed the space generally advised by a practical exhibitor. Can anyone deny that the great improvement effected in vegetable culture during the past few years has been to a very great extent due to the competitive shows throughout the country. A few years ago we were content to allow the Spaniards to supply us with most of our large Onions. Now these are produced in large quantities in most gardens at home. If vegetables grown in the ordinary way are the best for table use, what cause have visitors to the exhibitions to make any complaint to their gardeners? Ideal vegetables, I admit, can only be produced by much care, hard work, and forethought, but much of this work is done in a gardener's own time, and, so long as the gardens are not allowed to suffer in other ways, the exhibitor of vegetables should command the respect of his employers, even if he cannot escape the critic. *Exhibitor.*

IMPORTING ALPINE PLANTS.—I must join my voice to Mr. Stuart Thompson's, although I disagree with him for being secretive about the habitat of *Eritrichium nanum* on Mont Cenis. (Shall enthusiast conceal a joy from brother-enthusiast? Then let wolf start protecting sheep from brother-wolf.) But my collecting experience certainly bears out his opinion that the worst plants of all to collect are the huge-rooted species of the highest pastures, where the soil also has a springy hardness very tiring and difficult to work. All the Alpine Anemones, that is to say, such woody-stocked things as *Trifolium alpinum* and *Potentilla nitida*, are almost impossible to get with their roots intact, but they are, as a rule, capable of surviving from a mangled fragment; though, even so, they take so long to recover their original splendour that for myself I prefer the slower but more satisfactory method of growing them from collected seed. Nor have I found the big Alpine Anemones troublesome about germinating. Even if the seed is kept over the winter, it "comes" with me like Cress, if sown straight out in a prepared bed. I now have dense masses of seedling *A. alpina* and *A. sulphurea*, with which I hope to form a true Alpine meadow scene in time. As for *A. vernalis*, I am afraid the glorious Lady of the Snow deteriorates and grows blowy under culture; anyhow, this is the easiest of the open-ground Anemones to collect by roots, especially if a mountain-path crosses its tract, as then it is only necessary to break up the cut sods on either side of the path to get abundant perfect roots of this Anemone, which, for the rest, germinates as willingly as the others. While on the subject of the great Anemones, may I put in a word for typical *A. alpina*, whose big, white flowers, backed with blue, are more beautiful than even the sulphur stars of *A. alpina sulphurea*. Perhaps the type is rarer; anyhow, it never seems to attract the homage always paid to sulphurea. Yet it is more exquisite, it is quite as vigorous, and in gardens has, I fancy, a tendency to maintain its single-stemmed, larger-flowered magnificence rather

more faithfully than the sulphur form, which tends to make a many-stemmed clump, whose blossoms thereby are diminished in size and brilliance. Both forms are of absolutely easy culture in any deep, light loam; but I have never yet solved the riddle of *A. baldensis*, which ought to be so easy, and yet with me has not proved satisfactorily prosperous and floriferous under any treatment. In respect to the saxatile species, I think Mr. Jenkins has more nearly the right of it. At least, in very great luck would a collector be who was able to "peel off" a rock *Primula* or *Saxifraga* from its bed of stone. This may be all very well for inferior Saxifrages and for *Sempervivums*, but my own experience of rock plants tells me that saxatile species worth the collecting generally have root-systems of an extraordinary length that ramify far down into the heart of a rock, which has to be prized away piecemeal if the plant is to be got with any hope of life. The joy of *Androsace*-hunting, for instance, lies in the quest for a piece of rock so rotten that it will allow you to lift away the slabs and secure those yard-long, silken fibres without which there is little hope of long preserving *A. helvetica* or *A. imbricata*. The same applies to the precious *Saxifraga cæsia* and *S. diapensioides*, and, indeed, in my experience, to almost every high Alpine that deserves being collected. Who will hope lightly to "peel off" *Doronicum glaciale*, *Geum reptans*, *Ranunculus glacialis*, *Primula marginata*, or *Silene Elizabethæ*? The only treasure I have ever "peeled" myself was *Saxifraga Cantosana* from ledges below St. Martin Vésuibie. But saxatile plants are Nuts very hard to crack. Let those who doubt me go and wrestle with *Androsace imbricata* above the Plan de Bertol, or with *Phyteuma comosum* on the cliff behind Cortina. Moraine plants, on the contrary, are a joy and a luxury to collect, even if their root-systems be as wide and labyrinthine as that of *Campanula cenisia*. And, of all plants on the Alps, the easiest, compactest and pleasanter to collect are uncontestedly, so far as my experience has always gone, those two most impracticable glories of the high places, *Androsace glacialis* and *Eritrichium nanum*. *Reginald Farrer.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MAY 5.—The majority of *Cypripediums* being out of flower, recent meetings have not been quite so crowded with exhibits.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), exhibited a good group of well-grown *Odontoglossums* in variety. The plants were well grown and splendidly flowered. (Silver-gilt Medal.)

W. R. LEE, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhouse), exhibited several interesting plants, including *Odontoglossum* × *ardentissimum* var. *Leeanum*, *O. crispum* var. *Gloria Mundi* Lee's var., *Cypripedium bellatulum* var. *plumptonense*, all of which received Awards of Merit.

Dr. A. HODGKINSON, Wilmslow (gr. Mr. Woore), exhibited several choice varieties of *Cypripedium bellatulum*, including the albino form, and the quaint variety known as *C. b. Queen of Spain*.

A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), was awarded a Silver Medal for a group of *Odontoglossums*. *O. crispum* var. *Earl Grey* and *O. × eximium* var. *mosaicum* received Awards of Merit.

J. T. CLIFTON, Esq., Lytham (gr. Mr. Float), staged a large group of miscellaneous Orchids, including several possessing a botanical interest. *Sobralia Cliftonæ*, a charming new species, received an Award of Merit. (Silver-gilt Medal.)

C. COOKSON, Esq., Wylam-on-Tyne (gr. Mr. Chapman), exhibited *Odontoglossum crispum* var. *Leonard Perfect* (First-class Certificate), and *O. × Ronald*, the latter apparently a hybrid with *O. × Adriane* concerned.

J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), was awarded a Silver-gilt Medal for a good group, in which were several fine varieties of *Cattleya Mendelii*. C. M. Mrs. Grahame White and C. M. Grahame White were given Awards of Merit.

Cypripedium × *Chas. Rickman* var. *Black Knight* also received an Award of Merit.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), received an Award of Merit for *Odontoglossum* × *Aviator*, the parentage of which is unknown.

Messrs. J. & A. A. McBEAN exhibited *Cattleya Mendelii* var. *Pearl McBean*, a fine, bold flower, of good shape and texture. The plant received an Award of Merit.

J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), exhibited *Odontoglossum crispum* var. *Oak Bank*, a beautifully spotted form, and *O.* × *Keighleyensis* *Beech's* var., both of which received First-class Certificates.

W. THOMPSON, Esq., Stone (gr. Mr. Stevens), received Awards of Merit for *Odontoglossum crispum* *Dorothy Arkle*, *O.* × *Wilsonii* *Walton Grange* var., and *O.* × *amabile* var. *picturata*.

S. GRATRUX, Esq., Whalley Range (gr. Mr. Shill), was awarded a First-class Certificate for *Odontoglossum crispum* var. *S. Gratrix*, a fine, spotted form, of large size and good shape.

Mr. W. BOLTON, Warrington, was awarded a Silver Medal for a mixed group of Orchids.

BUDAPEST INTERNATIONAL EXHIBITION.

MAY 5-16.—To mark the occasion of the 25th year of the Hungarian Horticultural Society, an international exhibition was held on these dates, at Budapest. The show was opened by the Minister of Agriculture, Count Béla Serényi, in the Hall of Industries of the City Wood. The exhibition was a success, there being 228 exhibitors. Gold, silver, and bronze medals, beside a number of important money prizes, were offered in the various classes.

The exhibition was well attended even on the opening days, and at the time of writing the great number of visitors makes notetaking a difficult task.

As at many Continental exhibitions in spring, Azaleas, Rhododendrons, Hippeastrums (*Amaryllis*), forced Lilac, *Spiræas*, Lily of the Valley, Palms, and Ferns were largely in evidence. The Dutch, Belgian, and German firms displayed these spring-flowering plants in large quantities. There were also similar exhibits from the gardens of His Majesty the King of HUNGARY, the City of Budapest, and the island Sct. Margit, in Budapest.

The exhibit from the gardens of the King of HUNGARY excited much interest. The plants included many of economic value, such as the East Indian Piper betle, the medicinal plant *Tamarindus indica*, the *Cinchona succirubra* (Peruvian bark), the "Paw-Paw," *Adansonia digitata*, the Upas-tree, *Antiaris toxicaria*, Tea, Coffee, and Cinnamon plants, and *Erythroxylon Coca*, from which cocaine is extracted.

In the same group were many interesting members of the Proteaceæ, and between these were specimens of *Leucadendron argenteum* and a male plant of *Fockea capensis*. Orchids were also exhibited from the Royal gardens.

Count HARRACH of Austria showed some beautiful *Ericas*, including *Erica persoluta* alba, *E. Chamissonis* (seedlings), *E. undulata*, *E. vestita* purpurea, *E. ventricosa*, and *E. levis* alba. This group found many admirers.

Carnations were well shown by M. CARILLAT, of Antibes. The size of the flowers, and their brilliant colours were remarkable.

A very pleasing castle-parterre was the work of M. BERNOLAK, a Hungarian market-gardener. It consisted of a small fenced flower-garden planted with groups of *Pelargoniums*, Lilacs, and dwarf Roses, crossed and margined by white paths. A small parterre on the opposite end appeared to merge into a landscape picture. The exhibit was awarded the prize of 500 crowns given by M. Edmond Mauthner, seedsman, Budapest.

Another interesting exhibit was made by the Royal Hungarian Academy for the Instruction of Gardeners, Budapest. Not only were drawings and plans exhibited by the ACADEMY, but also work of a more practical nature, including flowers, fruits, and vegetables.

Count MAURICE ESZTERHÁZY showed some splendid examples of forced vegetables, and some Strawberries, Cherries, and Peaches.

The keeping of fruits through the winter was demonstrated by the HUNGARIAN REFRIGERATION

Co., with up-to-date appliances for conserving purposes.

Foreign nursery firms showed rich and varied collections of fruit trees, shrubs, and Conifers, whilst the nurserymen of the Hungarian State also made a fine display of similar trees, Conifers being especially well shown by M. PECZ, Budapest.

The exhibition included displays of floral designs, landscape gardening, diagrams, implements and tools, hot-houses, appliances for heating and watering, and exhibits of various insecticides. *Special Correspondent.*

BRITISH GARDENERS' ASSOCIATION. (LONDON BRANCH.)

MAY 12.—The second annual meeting was held at Carr's Restaurant on this date. Mr. E. F. Hawes occupied the chair.

Nine meetings have been held during the past year, the average attendance being 50. Three excursions to places of interest were conducted during the summer. Two concerts have been held, and these have proved very successful. Fourteen new members have joined, the total membership being 185. The Chairman congratulated the members upon the good progress made and upon the satisfactory financial condition.

Mr. Hawes resigned the post of chairman, Mr. North being appointed in his stead. Much regret was expressed by the members at Mr. Hawes's resignation. Mr. A. G. Barnes was appointed vice-chairman. The committee was also elected, and Mr. A. G. Barnes and Mr. V. Cockram re-elected as treasurer and secretary respectively. The business being concluded, Mr. Feltham gave an address upon the policy of the British Gardeners' Association.

DUTCH BULB GROWERS'.

At the recent meetings of the Narcissus and Tulip Committees at Haarlem the following plants received Awards of Merit:—

Narcissus Glory of Wassenaar.—A large-flowering, yellow variety, with broad trumpet, somewhat darker than the pale-coloured perianth.

Narcissus Glory of Haarlem.—A golden-yellow Daffodil, with trumpet of erect habit, and broad, finely-formed perianth.

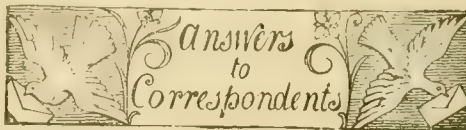
Narcissus Chantecler.—A variety with large, clear, citron-yellow-coloured trumpet.

Single early Tulip "Oranje Boven".—A new, dark orange-coloured variety, resembling the well-known variety *Prins van Oostenrijk*.

NEW INVENTION.

A USEFUL PLANT STAND.

The plant stand made by Messrs. Barr Bros., Deptford Pottery, Sunderland, is most valuable for protecting plants and seedlings from the attacks of insects, including slugs, woodlice, and ants. There is no risk of overturning the stand, which is of attractive appearance. This firm has also placed on the market a green plant pot, which is one of the best I have seen. The pots are a little deeper than the ordinary ones, and have a ledge inside for the plant to rest upon, allowing water to pass quickly away from the roots. *J. C. C.*



ARTILLERY PLANT: *J. C. G.* The species known as "Artillery" or "Pistol" plant is *Pilea microphylla*, often known in gardens as *P. muscosa*. It is a tropical plant, belonging to the natural order Urticaceæ or Nettle family.

ASPARAGUS DISEASED: *R. D.* The plants are affected by "root-rot," caused by *Sclerotinia*. All diseased plants should be removed and the soil treated with lime, preferably gas-lime.

BASIC SLAG FOR VINES: *J. McC.* Basic slag when properly used is not injurious to young vines, in fact it has frequently been found of

great benefit. You do not say how long the compost had been made before the vines were planted into it. What has happened appears to be this: the basic slag, lime rubbish, and wood-ashes have acted on the decomposing cow-manure and set up a strong ammoniacal action. Free ammonia gas is injurious to the young roots of all plants, and the effect would be exactly as you describe—a dying off of the young shoots and a blackening of the bark of the roots. It is a case of overfeeding with ammonia. Having employed basic slag and wood-ashes for the compost, it would have been better to omit the lime rubbish, or the compost should have been made a month previous to planting the vines, and turned two or three times to allow of the escape of the free ammonia. If the vines are not too greatly damaged they will most likely start afresh into healthy growth, because the free ammonia quickly becomes converted into nitric acid in the soil through the aid of the nitrifying organisms. Loosen the surface soil with a fork to admit the air.

HALF-HARDY SHRUBS: *Montana*. Half-hardy shrubs grown in pots may be wintered in skeleton frames erected on dry ground, protected from east and north-east winds. Strong posts should be driven into the ground at the corners of the bed, and at intervals along the sides, taller posts being used along the centre. In cold weather the roof and sides should be covered with mats or some other protective material, which should be removed when the temperature rises above the danger point.

NAMES OF PLANTS: *S. C. J.* *Luzula maxima* (this plant is not considered poisonous).—*N. A. D.* *Dicentra formosa*.—*Claydon Nursery Co.* *Lavandula Stœchas*; the dark, erect Italian Cypress is probably *Cupressus sempervirens*.—*C. H.* 1, *Ribes aureum*; 2, *Lonicera tatarica speciosa*.—*A. J. J. G.* 1, *Dendrobium Pierardii*; 2, *D. densiflorum*; 3, *Cupressus Benthamii*; 4, *Cupressus Lawsoniana stricta*; 5, *C. L.* var.; 6, *C. L.* near *erecta viridis*. There are numerous varieties of Lawson's Cypress, and they are difficult to determine from mere shoots.

PALM AND CYPRIPEDEUM UNHEALTHY: *R. P.* The *Kentia* exhibits the usual trouble seen in Palms used for room decoration. The principal cause is the dry atmosphere of the room, but inattention in watering—affording too little or too much—is a common reason for Palms dying at the tips of the leaves. There is no disease in the *Cypripedium*; the condition of the leaves suggest some trouble at the roots.

PELARGONIUMS UNHEALTHY: *R. & Co.* No disease is present. The plants appear to have been kept too close. Expose them to plenty of fresh air, and place them well apart.

PLUM SHOOTS DYING: *S. H. T.* The shoots are killed by the twig-boring moth. All the infested branches should be cut off and burned—by June at the latest, as at that time the moths escape and lay their eggs on the adjoining shoots.

STERILE POTATO TUBERS: *G. C. P.* It is difficult to determine the cause of the complete blindness of your Potato tubers. There is not the slightest evidence of any disease even about the eye-buds. These, indeed, seem to have failed to push growth because the vascular cords which convey the food to the buds when they begin to grow appear undeveloped in your specimens. Over-feeding may have caused this trouble, but it is very doubtful, as it is so uncommon. It is possible that the tubers are weak through having been grown from stock raised in the same garden year after year. You will do well to procure sets from Scotland or Ireland. It is not as yet too late to plant fresh tubers.

VERBENAS: *W. & J. B.* We can find no trace of disease in the young plants of *Verbena*, but they are infested with mites. Syringe the plants with a mixture of soft soap and sulphur dissolved in water.

Communications Received.—H. F. B. If you will send us particulars of the appointment we will publish them. Werby—J. H., Westmoreland—R. G.—J. E. H.—R. B.—G. F.—A. C. S.—J. B.—Souci—J. H., Compton—Smyke—J. K. A., Cornwall—W. R.—Professor P., Director of Imperial Institute—S. A.—A. Mc K. G.—Platinus—L. N.—E. T. C.—F. M.—J. D.—Dr. A. H.—T. S.—R. I. L.—Sir D. M.—W. R. D.—W. F.—Florist—J. C.—Rev. H. F.—W. E. B.—A. V.—T. H.—T. W. L.—E. H. K.



Photograph by W. J. Vasey.

HECHTIA ARGENTEA IN THE SUCCULENT HOUSE, ROYAL GARDENS, KEW.

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SPRING FLOWERS IN THE SOUTH WEST.

THE spring has been very backward in this district, as for many weeks past the wind has been more or less northerly and the weather exceptionally cold for the time of year. The winter temperature was not low, 5° of frost being the most registered in this garden at one time, but much damage has been caused by wind. *Arc-totis aureola*, which in 1907 and 1908 was killed to the ground level, is absolutely unharmed, and was in flower this year before the close of March. *Iris stylosa* was very late in commencing to flower, scarcely a bloom being borne before the New Year, though in ordinary seasons it begins its display late in October, and continues to flower uninterrupted until the end of April. Doubtless its late blooming was due to the sunless summer of last year. The blue Chilean Crocus (*Tecophilæa cyanocrocus*) was very beautiful in the early spring with its deeply-coloured blossoms, but it is apparently a somewhat intractable plant, and dies out in many gardens, though in one or two places it succeeds

to perfection and increases from self-sown seed. The scarce and charming *Romulea pylla*, with satin-white, golden-centred, Crocus-like flowers, was very pretty when in full bloom, dozens of blossoms being expanded at the same time, which created a delightful effect. Hard by, *Romulea nivalis* was growing, its white flowers feathered with blue, and these two plants, with a purple *Trichonema*, blooming together on the same ledge, made an extremely dainty picture. Some of the Tulip species made a splendid display. *T. Greigii*, with about 20 great, scarlet blossoms expanded at the same time, had a gorgeous effect; *T. Tubergeniana* produced its large vermilion flowers in quantity, and *T. Batalinii* its lovely pale-yellow blooms, while the Lady Tulip, *T. clusiana*, was delightful with its little blossoms, white with carmine-red markings and a centre blotch of deep violet. *T. flava* is a noble Tulip, and one of the latest to flower. The blossoms are large and of a clear-yellow colour, and it exceeds 2 feet in height; *T. Kauffmanniana* is one of the loveliest of all Tulips, almost resembling a refined Water Lily. The creamy-white flowers with golden-orange bases barred with orange-red are especially beautiful. Of scarlets, there are the grand *T. Gesneriana* major, very bad to beat; *T. Ostrowskiana*, a graceful plant with vividly-coloured blossoms, and *T. linifolia*, with narrow, serrated leaves and dazzling flowers. *T. saxatilis*, with faint-rose, golden-centred blooms, flowered badly, but where its bulbs had been undisturbed it bloomed well, so that the practice of annually lifting all the Tulip species will be discontinued in its case. *T. Kolpakowskiana* is a pretty flower, deep yellow in colour, and *T. celsiana* is another pretty yellow variety; *T. pulchella* was so disappointing it will be discarded, as its cherry-red flowers only rose an inch above the ground. The Tulip species are very interesting, and it is a wonder they are not more generally grown. The only florists' Tulip grown was *La Tulipe Noire*, which is the nearest approach to black of any Tulip. Many of the stems bore two flowers.

The delicate little Violet Cress (*Ionopsisium acaule*), which seeds itself all over the garden, was very charming, carpeting a bed of bulbous Irises. *Hardenbergia monophylla* alba, which flowered for the first time last year, was in bloom in February, and remained in blossom until May. *Brachysema acuminatum*, trained against a wall, commenced to flower in March, and it is still in bloom. The South African shrub, *Euryops virgineus*, made an attractive picture early in April, when it was covered with a cloud of tiny yellow blossoms, and a specimen of *Edwardsia* (*Sophora*) *microphylla*, about 6 feet in height, bloomed splendidly, carrying over a hundred flower-clusters, some of them bearing as many as 14 blossoms. This plant made rampant growth for some years, but never produced a flower; therefore, a trench 4 feet deep was dug round it at a distance of 2 feet 6 inches from the stem, and this trench was filled with stones to the ground level, the exposed roots being cut away. The plant has bloomed well every year since. *Correa cardinalis* was in flower before Christmas, and carried its blossoms well into April. One of

the prettiest plants in that month was *Morisia hypogæa*, a colony of a dozen being covered with bright-yellow flowers. *Lithospermum rosmarinifolium* bloomed in February, its deep-blue flowers being extremely welcome at a time when, in the open garden, there was scarcely a blossom to be seen. *L. graminifolium*, which was sent to me as *L. rosmarinifolium*, is not yet in bloom, but its buds are beginning to show colour.

The lovely Californian *Erythroniums* do not succeed in many gardens, but where they do well they are strangely beautiful. In a garden near Truro they succeed to perfection, and in April many dozens of great flower-clumps, with wide-petalled blossoms standing 18 inches high, make an exquisite picture. They are grown in pure leaf-mould collected beneath an old rookery. The crimson *Erythronium Johnsonii* was especially beautiful, and there were many home-raised seedlings with flowers almost equal in colour. *Leptospermum scoparium* was badly injured by wind in the winter, and all its foliage was browned. This resulted in a severe check, and instead of being in full flower now, as it generally is at this time of the year, the plant bears but a few scattered blossoms. *Manettia bicolor* is in good bloom, but the crimson and white varieties of *Clanthus puniceus* have been so badly injured by wind that they lost every leaf, and have been cut hard back, though whether they will eventually regain their health or have to be replaced by young plants remains to be seen. *Iris tingitana* has never flowered so well. On one clump there were as many as 33 flower-spikes, which were an entrancing sight when at their best in the first week of May. Many people appear to have a great difficulty in flowering this *Iris*, but I have bloomed it well for the last seven years. *Ixiolirion montanum* is now in profuse bloom; this beautiful plant is far superior to *I. tataricum*. It is over 2 feet in height, and a dozen flowers are often carried on a scape. The beautiful *Gladiolus tristis*, clear sulphur-yellow in colour, was in flower at the end of April, by far the earliest of its family to bloom. It increases rapidly by bulblets and also by seed. The scent from the blossoms at night is delicious, and much resembles that of a *Magnolia*. The pure sulphur form, I believe, is not in commerce, nurserymen who catalogue it sending out a variety with wide, purple bands on the three upper petals, which is far inferior to the sulphur-coloured variety. *Celmisia coriacea* flowered last year, but afterwards died for some unknown reason; a good plant of *C. incana* is now throwing up flower. The Alpine *Clematis* (*Atragene alpina*) has been very beautiful with its narrow-petalled, pale-blue and white flowers, and *Deutzia Kalmiæ-flora*, the loveliest of its race, is now a charming sight, as every spray is thickly covered with delicate blossom. *Diervilla* (*Weigela*) *Conquete*, one of the best of the family, is in full bloom, and is bearing its pink flowers fully 2 inches across. *Shortia galacifolia* has been charming, but the newer *S. uniflora grandiflora*, though planted in a specially-prepared site, appears likely to die. *Sparaxis* in various colours have been very attractive, *Fire King*, scarlet with a yellow eye, being the most brilliant variety. A pretty *Gladiolus* has just come into flower. This is *G. atroviolaceus*, and the blossoms are of a deep

violet-purple. One of the most delightful sights in the garden at the present time is a colony of *Iris* (*Moræa*) *pavonia*, with about four dozen expanded flowers. The white blossoms faintly flushed with blue-grey, with the deep-blue spot on each petal margined with violet, are very lovely, and the opening buds reticulated on the outside with lavender-blue are almost as beautiful as the expanded flowers. The plants are growing on a raised border backed by a wall and facing the south-west. This border was formerly planted with a large collection of early-flowering, bulbous *Irises*, but most of these have died, *I. pavonia* being the only one that appears happy in the site. *Wyndham Fitzherbert*.

NEW OR NOTEWORTHY PLANTS.

NARCISSUS × FOSTERI *

THIS is a beautiful hybrid raised by the late Sir Michael Foster, whose name, I think, it is

placed under *Corbularia*, though the scapes are two-flowered, which is not quite without precedent in that section. The bulbs were presented to me by Lady Foster a few years ago, and I have found this hybrid a valuable plant for the decoration of the conservatory in March. It has been treated to ordinary pot culture and has succeeded well.

The leaves are very like those of *N. triandrus*; they grow about 10 inches long and are about $\frac{1}{4}$ inch wide, the upper surface is slightly concave and quite smooth, the lower surface distinctly convex and finely ribbed. In pot culture they do not remain erect, but fall over as shown in the accompanying illustration (see fig. 146). The scapes are as long as the leaves and bear two flowers, which in general direction are almost spreading rather than distinctly reflexed. The perianth tube is always slightly curved, but sometimes to a considerable extent. It is about $\frac{3}{4}$ inch long and tapers into the corona, being about 1-16 inch diameter at the base and $\frac{1}{4}$ inch below the perianth segments. The perianth segments are lanceolate, $\frac{3}{4}$ inch long and about 3-16 of an inch wide; they have a green line at the back and are slightly inclined

species, it differs conspicuously in being two-flowered, in having spreading or slightly deflexed instead of ascending flowers, in having an infundibuliform and not an obconic tube, and in having perianth segments which are slightly recurved rather than ascending.

From *N. triandrus* it differs in having a slightly curved and funnel-shaped tube (not cylindric as in that species), which is $\frac{3}{4}$ inch long instead of from $\frac{1}{2}$ to $\frac{3}{4}$ inch long; in having a large obconic or campanulate top-shaped corona instead of a cup-shaped corona one-third only as large; in having perianth segments which are lanceolate instead of oblong, only half as wide as in *triandrus* forms; and also in having declinate stamens which are never declinate in any form of *N. triandrus*. In *N. triandrus* the flowers are sharply deflexed by the bending of the pedicel and not at all by any curvature of the perianth tube, which may be detected more or less in *N. Fosteri*. Briefly, to define this plant it may be said that there is no other twin-flowered *Narcissus* with a large corona and declinate stamens. But hybrids may have been raised, of which I have no information.

I am indebted to Messrs. Barr & Sons for some very beautiful allies, which they have kindly sent to enable me to make as good a diagnosis as possible. Among them, besides the two parents of *N. Fosteri*, are *N. Bulbocodium conspicuus*, of beautiful golden colour; *N. calathinus*, which, in this case, is almost pure white, and quite evident, one must think, as taking part in some hybrids, not only in colour but in the shape of the corona, which is shortly cylindrical; *N. triandrus albus*, known as "Angels' tears," creamy-white and with corona rather longer than in *N. triandrus pulchellus*; and *N. triandrus hybridus*, a beautiful kind much larger than the others, evidently, I think, crossed with a Daffodil. For the excellent photograph I have to thank Mr. E. J. Allard, formerly of Cambridge, but now of the Innes Horticultural Institution. *R. Irwin Lynch*, V.M.H., Botanic Gardens, Cambridge.



FIG. 146.—NARCISSUS × FOSTERI; CORONA AND PERIANTH SEGMENTS PALE YELLOW; TUBE GREENISH-YELLOW.

worthy to commemorate. It is a cross between *Narcissus* (*Corbularia*) *Bulbocodium* var. *citrinus* and *N. triandrus*, and it possesses the merit of being as easily grown as the latter plant, which I believe was the male parent. It is fairly intermediate between the two parents, and quite distinct from either. It unites the genera *Corbularia* and *Ganymedes* (now of sectional value only) which were established by Salisbury in the *Transactions* of the Royal Horticultural Society in 1812. Having regard to the similar size and shape of the perianth, the lanceolate perianth segments, and the declinate stamens, it must be

to twist; the corona is about $\frac{3}{4}$ inch in depth and the same in width. The stamens are declinate, as in *N. Bulbocodium*. In colour the corona and perianth segments are pale yellow, like *N. Bulbocodium citrinus*, and the tube is almost green or of greenish-yellow colour. The stigma is very small, disc-like, and depressed in the centre with a papillose margin.

This hybrid differs from both parents in having a slightly, or even more than slightly, curved tube and in having distinctly spreading perianth segments. In no nearly allied plant can I find a curved perianth tube, and while the perianth segments are strongly reflexed in all *N. triandrus* forms, they tend to be erect in *N. Bulbocodium*, so that the hybrid in having spreading perianth segments is intermediate. From *N. Bulbocodium citrinus*, and indeed from all other forms of that

CHOICE RHODODENDRONS.

No evergreen shrub holds such an important position in gardens as the *Rhododendron*, combining as it does bold, handsome foliage with a wide range of colouring in the flowers. During the latter half of May and the greater portion of June, *Rhododendrons* provide an ever-changing blaze of colour, from the common lilac-purple of *R. ponticum* to the more refined shades of red, pink and white of the finest hybrids. When it is remembered that all the most beautiful varieties have been produced by hybridisation from about half-a-dozen species, it is surprising there is such an amount of variation. Probably some 500 hybrids have received names, and many thousands of others have been discarded as not worthy of naming or perpetuating. Like *Roses*, there has been, and still is, a tendency to the multiplication of names of *Rhododendrons*, irrespective of the quality of the plants named. The ideal *Rhododendron* must have good foliage, a strong, vigorous habit, free-blooming qualities and the inflorescence must be a conical or pyramidal truss of bloom, the individual flowers of which are closely set together; the flowers must exhibit a good, decided colour. In many hybrids, however, too much attention has been paid to the flower, and not enough to the habit and foliage of the plant. It is difficult sometimes to decide whether a plant is worthy the distinction of a name or not, as a good, showy bloom, freely produced, is a very desirable factor. A case in point is that deservedly-popular hybrid *Rhododendron* "Sappho." This bears a large, pyramidal truss of white flowers marked with a dark blotch on the upper petal. Though perfect in this respect, it has the disadvantage of being a leggy grower, inclining, with age, to become straggling and thin. If, however, the plant is cut down when at this stage it becomes bushier and of better habit afterwards, though, of

* NARCISSUS FOSTERI, hybrida inter *N. Bulbocodium* var. *citrinus* (foem.) et *N. triandrum*; scapo bifloro, floribus proxime horizontalibus, perianthii tubo infundibulati minime curvato; segmentis lanceolatis patentibus; corona magna tubinatis campanulatis segmentis aequalilongis; staminibus declinatis. *R. Irwin Lynch*.

course, the flowers are sacrificed for a year or two. The nearest approach to an ideal Rhododendron is "Gomer Waterer," which bears a somewhat flattened pyramidal truss of blush-white flowers of enormous size. The leaves are large, thick and dark green, and the habit is bushy without being slow-growing, while, in addition, the plant is very free in flowering.

Of late years the popular taste has inclined to those varieties with clear red, pink and white blooms, there being no demand for those of lilac or purple shades, with the exception of the ever-popular "fastuosum." There are two distinct classes of hybrid red Rhododendrons: (1) those that show best on a close inspection, and (2) those which are more effective at a distance, being rather poorly coloured when seen at close quarters. The latter class includes most of those with bright crimson blooms, and also those which have a strong admixture of purple in their colouring, so that they are best described as magenta-crimson.

Amongst those that have this effect are Fred Waterer, John Walter, Michael Waterer, Charles Dickens, and C. S. Sargent. There is no true scarlet Rhododendron, though some more nearly approach scarlet than others, and these appear better seen at close quarters. Of these Doncaster, Sun of Austerlitz, Duke of Connaught, Prometheus, and the so-called scarlet-edged section, such as Helen Waterer, B. W. Currie, and Lady Ilchester may be mentioned as examples.

Rose and pink hybrids have come into favour largely during the last 10 years, and when it is considered that these colours are represented in such varieties as Pink Pearl, Cynthia, Concessum, Kate Waterer, Strategist, and Lady Tankerville, their popularity is not surprising. Next to Pink Pearl, the best clear pink hybrid is the old and almost forgotten "Mrs. Cameron," which is rarely seen nowadays, though why it should not be popular still is hard to say, as it has no defects.

There are many so-called white Rhododendrons, but true white varieties are few, and are best represented by Mme. Carvalho, Mrs. Tom Agnew, Chionoides, and Mrs. J. Clutton, which all bear clear white flowers, with few markings. The two first-named I consider the best of their class, as they will grow almost anywhere and are very floriferous. Those of blush-white shades and others with heavy spots are plentiful, being represented by album elegans, gloriosum, Lady Hillingdon, Lady Clementina Walsh, Minnie, Sappho, F. B. Hayes, and Star of Ascot.

The raising of hybrid Rhododendrons is a slow and disappointing task. It needs much patience and good temper waiting years for plants to flower, only to find perhaps not one in a thousand is worthy of perpetuating. It takes from seven to 10 years to produce a fair bloom from the time of seed sowing. The proper thing, however, is to keep on trying, and bear the disappointments philosophically, trusting that "next year" will bring better luck. *J. Clark, Bagshot, Surrey.*

RHODODENDRON RACEMOSUM.

Of the numerous Rhododendrons indigenous to the province of Yunnan, this is by far the most abundant species. It is a charming little shrub, and, with much variation in form and colouring, extends from as far south as Mengtze, on the Tong King frontier, right north into Tibet, and from the frontier of Upper Burma eastwards well into the province of Szechuan. Its range of altitude is also great, being from 4,000 feet to 12,000 feet.

The favourite situations of the plant are rolling; grassy downs at about 9,000 feet above sea-level. Such downs are common in Yunnan, and there the species may be seen in perfection, in some regions dominating many square miles, to the exclusion of almost all other shrubs. It holds almost the same position on the mountains of Western China as our Heather does at home, the masses of colour being visible for miles. In the south, the plants are loosely formed, the flowers lightly coloured and more scattered; but,

at its best, it forms a compact, dwarf shrub, from 1 foot to 3 feet high; with numerous flowers, though of small size and of a brilliant rose-pink colour.

In many districts the only other shrub found in the vicinity was Rhododendron oleifolium, which I imagine is a closely-allied species. The flowering of *R. racemosum* is practically continuous, extending from February to October, or even later. The situation favoured by the plant is a dry and open locality, with a soil of reddish, clayey loam, containing a good admixture of lime, overlying a pure limestone formation. *George Forrest.*

FOREIGN CORRESPONDENCE.

NOTES FROM THE CANARY ISLANDS.

PROBABLE ORIGIN OF THE WASHINGTON NAVAL ORANGE.

In an old dictionary on the natural history of the Canary Islands written at the end of the eighteenth century, by Viera y Clavijo, and under the heading "Lemon," reference is made to a peculiar variety, which the author calls

An old Spanish admiral, Don Antonio Ulloa, who was also a great student of natural history and founder of a museum in Madrid, paid a special visit to Teneriffe to see for himself that the occurrence of this Lemon, "Citrum in Citro," was not a fable but a reality. This Admiral wrote a work entitled *Voyage to South America* in 1748, which was translated into French in 1752.

No doubt such variations are much more likely to occur in a uniform climate like that of the Canaries, where cross-fertilisation is so favoured by natural conditions.

Of late years, owing to the introduction of living plants from other countries, scale insects and other blights have become very common, and have caused much destruction to Orange trees, but it can be asserted, without fear of contradiction, that there is no more ideal climate for the cultivation of these trees than that of these islands, and it is to be lamented that plantations have not been made in the Canary Islands similar to those in California.

TAGASASTE.

(CYTISUS PROLIFERUS L. FIL. V. PALMENSIS, CHR.)

BESIDES this well-known forage plant, which has not had the attention given to it that it de-



[Photograph by George Forrest.]

FIG. 147.—RHODODENDRON RACEMOSUM FLOWERING ON THE TALI RANGE, YUNNAN, CHINA (ALT. 9,000 FEET): FLOWERS PALE PINK AND WHITE.

"Citrum in Citro," and which he asserts was not uncommon in the islands of Teneriffe and Grand Canary. Reference is also made to a similar Orange to be found then growing in Grand Canary. May the latter not be the ancestor of the present Californian Orange (seedless or navel)? Some years ago I remember that Sir Daniel Morris* made investigations about Sugar Cane and Bananas, and he ascertained the fact that they found their way to the New World via the Canaries. We know that the above-quoted "Washington Navel Orange" was imported from Brazil, and it is not illogical to presume that it got there from Grand Canary, which has always been famous for its Oranges.

* The Plants and Gardens of the Canary Islands are described in a paper read before the R.H.S. by Sir Daniel Morris on May 14, 1895, and published in the *Journal* of the Society, vol. xix., pp. 60-122.

serves in suitable countries, like South Africa, and Australia, there grows in the same island of Palma, where Tagasaste is indigenous, another very beautiful *Cytisus* (*C. stenopetalus*), also called *Teline stenopetala*, the local name being "Gacia," which is used as a valuable fodder. It is probable that in years to come, and in suitable countries, due attention will be given to these two shrubs; they are both very drought-resisting, and would be further serviceable in re-afforestation, but I would venture to suggest that the only way of insuring their permanent success in either South Africa or Australia would be for the Agricultural Departments of those countries to make a trial plantation of, say, one acre, and show what can be done with these leguminous plants in the feeding of cattle; otherwise, the usual routine criticisms will invariably be made

by farmers that stock "won't touch them," &c., &c. Besides being ornamental plants, they would be of great service to beekeepers. (For a full account of Tagasaste as a fodder plant see *Kew Bulletin*, 1891, p. 239, and 1893, p. 115.)

OLEANDER.

I HAVE generally understood that the old, well-known double pink Nerium will not seed, and this certainly was the case in a garden where for some 50 years this variety has been cultivated. It was noticed, however, that since the recent introduction of single-flowered varieties the old plants have begun to seed. I venture to suggest an explanation, which is that, being plants multiplied by cuttings, the double pink Nerium is probably the offspring of a single plant which may not be self-fertilising. In support of the above suggestion, I may allude to my personal experience in the growing of *Statice*. I have found that solitary specimens of most species will not seed, and, if so, only very little. I have observed the same in the case of the Rose Root, or *Lignum rhodium*, the beautiful shrubby *Convolvulus* known as the "Guadil" (*Convolvulus floridus*), in which I have known isolated plants that will not seed at all, and others that will seed freely.

LOTUS BERTHOLETII (HEINEKENIA).

This rare and ornamental plant of the Canary flora, although extensively cultivated in gardens, has not been found growing wild in Teneriffe by any recent botanical collector. It gives very few seeds, and the reason may be that the plant is almost invariably reproduced by cuttings, representing, in all probability, an original solitary plant. Occasionally (but very seldom) one of these cultivated Heinekenias will seed freely. *George V. Perez, Puerto Orotava, Teneriffe.*

THE PERILS OF PLANT-COLLECTING.

(Concluded from page 326.)

At the end of eight days I had ceased to care whether I lived or died—my feet swollen out of all shape, my hands and face torn with thorns, and my whole person caked with mire. I was nearly dead through hunger and fatigue, and on the evening of the eighth day and morning of the ninth was quite delirious for a time. Then I knew the end was near, and determined to make one more bid for life. In the valley there happened to be two small villages of four to six huts each, peopled by Lissoos, a sub-tribe of Tibetans, and I decided on holding up one of these, to force the inhabitants to give me food. This plan I carried out on the evening of the ninth day. Fortunately, instead of opposing me, the people proved friendly. The one and only food of these people consists of parched Barley, or Wheat coarsely ground; it is called "tsaniba." This they offered me, and having but little self control, after such a long starve, I partook of it ravenously, in fact to such an extent that I almost died of the effects. As it was, to add to my trials, I brought on inflammation of the stomach, from which I suffered for many months. The headman of this village proved one of the best friends I ever had, and at once commenced making arrangements to smuggle me out of the country. After four days spent in restful hiding, we descended the valley until we reached its junction with that of the Mekong. Here we were met by the headman of a village situated there, and he informed us that though the majority of the rebels had returned north, there were still many powerful bands scouring the countryside in search of me; in fact, one had spent the previous night in his village. He suggested we should go into hiding until after sunset, when he would send out some of the native hunters to escort us to a farmhouse a few miles distant, where we could spend the night in peace; then, on the following day, with guides he would send to me, I was to ascend west to almost the summit of the dividing range, and striking south we should skirt the troubled region and thus reach safety. This plan we

eventually carried out, but the misery of it all is entirely beyond my powers of description. It was the middle of the rainy or summer season, and I soon found myself in the thick of the worst downpour Yunnan had known for a generation. Up and up we climbed, struggling through canebrakes, cutting our way through miles of Rhododendrons, tramping over alps literally clothed with Primulas, Gentians, Saxifragas, Lilies, &c., for these unknown hillsides are a veritable botanists' paradise, till we reached the snowfields on the backbone of the range, at an elevation of 17,000 to 18,000 feet. We had no covering at night; no food but a few mouthfuls of parched barley, and the rain and sleet fell in such deluges that to light a fire was impossible. On reaching the summit we turned south, travelling in that direction for six days, over glaciers, snow and ice, and tip-tilted, jagged, limestone strata, which tore my feet to ribbons. On reaching this point, we hoped we had got beyond the danger zone, and commenced our



PORTRAIT OF MR. GEORGE FORREST TAKEN IN TALIFU IMMEDIATELY AFTER HIS ESCAPE FROM THE LAMAS.

descent eastwards towards the Mekong. Down, down we went, over sharp, jagged rocks and through Bamboo brakes, until we reached the inhabited zone at about 9,000 feet, and here, to put the finishing touch to my misery, I seriously hurt one of my feet. Round most of the villages, the inhabitants are in the habit of placing on the paths around their Maize fields what they name "panji." These are sharpened and fine-hardened pieces of Bamboo of 12 to 18 inches in length; they are buried in the ground fully three-quarters of the full length, the sharpened end being upwards, and covered loosely with soil or leaves. In approaching one of the villages by an exceptionally muddy path, I unfortunately stepped on one of these "panji." Had I been in a normal condition of health, I might possibly have had strength enough to have thrown myself back in time, but I was so weakened by the experiences I had passed through and by exposure, that I

simply fell forward on it; the spike, fully an inch in breadth, passing between the bones of my foot and protruding a couple of inches from the upper surface. I suffered excruciating agony for many days, and it was months before the wound healed completely.

Finally, we arrived on the right bank of the Mekong opposite the large village of Yetche. The chief of this village was a friend of mine. My troubles then were almost over. This excellent man came across the river, at great risk to himself, bringing clean cotton clothes for me, besides a large quantity of food, such as pork, eggs, chickens and cakes, and at last I got what I required more than even those, a change of clothing, a good wash and a night's rest.

As bands of Lamas were still prowling about near Yetche, disguised as a Tibetan and accompanied by my faithful guides and others, I continued my course down the right bank of the river till, four days later, I arrived opposite the little Chinese-Tibetan township of Hsias Wei Hsi, where Chinese troops were stationed. After much delay, everyone even there being panic-stricken, I managed to get some of the people to come down and assist me over the single rope crossing the river at that point, and on reaching the town found another missionary (Père Monbeig), who had also escaped from a station in the west. He and the Chinese officials welcomed me as one returned from the dead, and a few days later he and I, accompanied by an armed escort of 200 Chinese soldiers, commenced our journey south to the nearest city—Talifu—which we reached in safety in the course of 19 days.

Later, I received from the military mandarin, named Li, a detailed account of the death of my two companions. As I mentioned, I saw Père Bourdonnet shot down; later the body was disembowelled, beheaded and quartered.

Père Dubernard escaped for two days, but was eventually run to earth in a cave farther up the valley. His captors broke both arms above and below the elbow, tied his hands behind his back, and in this condition forced him to walk back to the blackened site of Tzekou. There they fastened him to a post and subjected him to most brutal mutilation; amongst the least of his injuries being the extraction of his tongue and eyes and the cutting off of his ears and nose. In this horrible condition he remained alive for the space of three days, in the course of which his torturers cut a joint off his fingers and toes each day. When on the point of death, he was treated in the same manner as Père Bourdonnet, the portions of the bodies being distributed amongst the various lamaseries in the region, whilst the two heads were stuck on spears over the lamaserie of the town of Atuntze.

I was reported dead for almost three weeks, but, fortunately, though there seemed no reason to doubt the authenticity of the information, the news was withheld from England for a time by the consuls and the authorities at the Foreign Office, on the chance that I might have escaped; thus my family mourned my loss for only a week.

Although escaping with my life, I lost everything I possessed, all my camp equipment, ammunition and guns, cameras, stores; in fact, my all, with the exception of the rags I stood in, my rifle, revolver and two belts of cartridges.

What was much more serious, I lost nearly all the results of a whole season's work, a collection of most valuable plants numbering fully 2,000 species, seeds of 80 species, and 100 photographic negatives. It is difficult to estimate the value of such a loss; coming from an entirely unexplored area, probably one of the richest in the world, there was undoubtedly a very large percentage of new species. I had sent scraps of specimens home in my letters, and about a dozen of those, or one-third of the number, proved to be new species. A magnificent new species of *Meconopsis*, now bears the specific name "speciosa;" another, even finer plant, was a climbing Rhododendron, having the habit of Ivy, with minute foliage and large, fleshy, crimson flowers. *George Forrest.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

BERBERIS STENOPHYLLA.—I sent you some time ago an account of an exceptionally fine specimen of *Cotoneaster Simonsii* (Feb. 19, p. 123), and will now give you particulars of a plant of *Berberis stenophylla*, which is growing on Lord Aldenham's property close to Aldenham House. The shrub is certainly the largest of its kind which I have seen, measuring as it does fully 11 feet 8 inches in height and 56 feet 6 inches in circumference. It must be close on 30 years old, and is perfect in shape. When its slender, trailing branches are covered all over with golden-yellow flowers in the middle of May it forms a spectacle commanding universal admiration. *Vicary Gibbs, Aldenham House, near Elstree.*

space. This is an unnecessary quantity, as 1 ounce to every 1,000 cubic feet will be found effectual. I do not doubt what Mr. Garratt says in reference to the cyaniding of vineries just after the Grapes have passed the stoning period; also Figs and Peaches in all stages. With the little experience that I have had with this fumigant, I should not care to try it on plants with growth in a young state. *Charles Herridge, Dunham Massey Hall Gardens, Altrincham, Cheshire.*

A THRUSH WITH TWO NESTS.—I have recently observed a thrush's nest built in a shed. At the time the nest was discovered it was raining hard, and owing to the drip from the roof the nest was very wet. Several days later two eggs had been laid, and by the side of the nest I was surprised to find that another nest had been built, one side of the first nest serving as part foundation for the second one, so that the two together looked like a

that the bird or birds observed that a nest built in close proximity to the original would escape the trouble which led to the abandonment of the first, and that it could be constructed with a great saving of time, labour and material, as compared to an independent nest—a great advantage to the bird, taking into consideration its condition—is remarkable, and appears to afford a good example of perfect reasoning. *Alfred Hamshire, Leicester.*

COLOUR IN APPLE BLOSSOM.—Now that Apple trees are blooming so profusely, a very favourable opportunity is afforded to note which varieties give the best colour effects. That this subject has interest outside of orchards is evident because there is a desire in many directions to have some of the richer-coloured varieties planted on lawns, where their bright flowers may be ornamental. An eminent gardener told me last



FIG. 149.—ANDROSACE HENRYI: A NEW CHINESE SPECIES.
Exhibited by Messrs. Jas. Veitch & Sons at the Temple Show (see p. 349).

[Photograph by R. J. Wallis.]

HYDROCYANIC GAS.—Mr. Charles Garratt says (see p. 295) that the damage done to the plants in the stoves here must have been due to a moisture-laden atmosphere. This was not the cause, as we were very careful in following out the directions sent with the machines, and these pointed out the necessity of having the structure perfectly dry. The atmosphere in the stove, as well as the intermediate house, was dry at the time of the operation. The temperature in the intermediate house was 45°, and that of the stove was 65° to 70°. I was much interested in the account of cyaniding the Muscat house with a temperature of 68° whilst the Grapes were at the stoning stage. Mr. Garratt states that he used 1½ ounce of cyanide to each 1,000 cubic feet of

double nest. I frequently watched the nests, and found that the bird confined her attention to the newer one and abandoned the original. Now, whenever there was rain, the original nest became very wet, and in the intervals between rain it never dried to any extent, while the last built nest kept perfectly dry. In this nest three eggs were laid, which the bird succeeded in hatching. It is evident that the bird must have laid the two eggs in the original nest after the abandonment of the nest was decided on, and did so as a matter of convenience only, as the interval between laying the second and third egg would not be sufficiently long to allow her to construct a nest. The desertion of the original nest would be expected in the circumstances, but the fact

autumn that he had been engaged in planting Apples for such purpose by special desire of his employers. From sources which enable selections to be made from hundreds of varieties of Apples I have secured a list which includes 13 varieties described as giving specially rich-coloured bloom, and a further list of 26 varieties which give externally bright, rich colour, but the petals are paler on the inside. It is interesting to note that there seems to be but little connection between colour in flower and in fruit, for only one exception is found in Baumann's Red Reinette. Not one of the remaining 12 varieties gives colour in the fruit. These are Sandringham, Old Winter Nonpareil, Dutch Codlin, Annie Elizabeth, Lord Suffield, Golden Spire, Northern

Dumpling, Nelson Codlin, Lord Derby, Brownlee's Russet, Rosemary Russet, and Harvey's Wiltshire Defiance. In the larger list only Mr. Gladstone appears as a high-coloured Apple, whilst the list includes Warner's King, Stirling Castle, Potts's Seedling, Stone's Pippin, Seaton House, and many others of similar colourless nature. Those who prefer fruit colour to bloom colour should plant Mr. Gladstone, Duchess's Favourite, Worcester Pearmain, Ben's Red, Baumann's Reinette, Gascoyne's Scarlet, Colonel Vaughan, Calville Rouge Précoce, Old Quarrenden, Fearn's Pippin, Paroquet, Red Astrachan, Scarlet Pearmain, Jonathan, Akera, and King of Tompkins County. To these should be added the Dartmouth, John Downie, and Red Siberian Crab Apples. Another point which it would be interesting to have investigated is whether colour in bloom has any correlation to hardiness. *A. D.*

PROMISE AND PERFORMANCE.—Since my remarks upon "Fruit Tree Blossom" (see p. 369) were written, frost, on two occasions, ranging up to 8°, has done a considerable amount of damage in some of the principal fruit districts. Gooseberries have dropped from the bushes more or less seriously, and a large grower in Kent states that the crop in his county will be a short one. Drooping in the Evesham district was reported before the latest damaging frosts. Currants also are said to have been injured to some extent, and Strawberries badly. Even in my southern situation Gooseberries have dropped somewhat extensively, and the yield will not be more than half what it was last year. The enormous profusion of Pear blossom, in my case, has left only a moderate setting of fruit on pyramids of some varieties, and less than an average on others, while on 12 rows of cordons in a sheltered situation, which always suffers more from frost than an exposed one, although the trees were covered with blossom, there will be hardly any fruit. Plums here seem to be setting fairly in proportion to blossom, but two varieties, out of the six grown to any considerable extent, have small crops. Of course, it cannot yet be told in what proportion the embryo Plums will mature. In some districts it is feared that this fruit was badly injured by recent frosts, and there is some doubt as to how Cherries passed through the ordeal. Apples here have not been harmed; but then we have not had more than 3° of frost 4 feet from the ground since any of them were in blossom. Where they had 8° the case may be different. It is a pity that fruit growers do not write more frequently to the horticultural papers to report fruit prospects. It would help them if they would compare notes on the subject, and thus ascertain the probabilities as to market supplies. For example, the reports as to the dropping of Gooseberries have induced me to alter a plan I had formed, namely, that of marketing as many as possible while they were small, in order to sell largely before the usual glut sets in. Under the circumstances, I conclude that there will not be any glut this season, and therefore I do not intend to pick freely until the berries are of full size. Another thing that has happened since my previous article was written is a slight attack of aphid on Plums, much later than usual. There is still complete immunity among Apples, and it would be interesting if readers would report whether this is general. *A Southern Grower.*

SAXIFRAGA FALDONSIDE AND OTHERS.—Mr. Reginald Farrer's note, on p. 294, raises several questions not easy to solve. As regards the parentage of Saxifraga Faldonside, I have always understood that it was one of the seedlings raised at the same time as S. Boydii, by Mr. J. Boyd, of Cherrytrees, but Mr. W. B. Boyd, of Faldonside, should be in the best position to enlighten us on the subject. There seems no definite knowledge available as to the parents, although S. burseriana was undoubtedly one of them. The other may or may not have been aretioides; if it was, it was probably the variety called aretioides primulina, that we used to grow many years ago, it being a brighter and finer plant than either aretioides itself or that now sold as primulina. I have not seen the finer form for many years past. I think one of the secrets of growing S. Boydii in wet districts is to keep it covered with a sheet of glass in winter; it is finer when grown in sandy soil in a sunny position than under other conditions. Mr. Farrer has cer-

tainly pointed out the failing of Boydii and Faldonside, but the former variety is worse to keep than Faldonside. What about Boydii alba? This is the easiest of the lot, and I have always found it do better even than Cherrytrees. I should like to know if Mr. Farrer has afforded these Saxifragas any shelter from wet in winter. *S. Arnott, Sunnyvale, Dumfries*

GUNNERA SCABRA AND MYOSOTIDIUM NOBILE.—I visited Heythrop on May 12, and, to my great surprise, saw these two stately plants in full bloom in the open air, at an elevation of 750 feet, in a district which is usually considered a bleak and cold part of England. I have not as yet been able to discover whether there are any botanical characters by which this particular Gunnera can be distinguished from the Gunnera which is usually grown as G. chilensis. I found it in February, 1902, in flower on a bed of stone débris 2 or 3 feet thick, which rested on the moving ice of a great glacier on the Tronador volcano in Chile, at about 2,000 feet above sea level. I raised a number of seedlings, some of which have grown and flowered in a well-drained border on the north side of a high wall in my garden at Colesborne, where they have endured temperatures of zero and perhaps lower, and in my garden have only just started into growth. I gave a plant of it to the Hon. Mrs. Brassey three or four years ago. She planted it by a pond in a sheltered place in her beautiful wild-garden at Heythrop, and has covered the crown of the plant in winter with litter, as usual. Her plant is now 6 feet high, and the flower-spike seemed quite uninjured by the severe frosts which have taken place on several nights in the present month. As I have since raised plants from home-grown seed, and have given seedlings to many friends, I should like to know whether G. scabra has proved as successful elsewhere, and especially how it compares in hardiness and early-flowering with other Gunneras. Myosotidium nobile I have never before seen flowering in the open air, except in warm and moist climates in the south and west. At Heythrop it is planted close to the wall of a forcing pit, which prevents the ground from freezing, and the plant is covered overhead, but exposed in front, in winter and spring, and though the plant was not as large or luxuriant as it may be seen in Cornwall, it surprised me more than anything I have seen out-of-doors for a long time. *H. J. Elwes, Colesborne, Gloucestershire.*

The Week's Work.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aisleham House, Hertfordshire.

Veronica.—This shrubby species of Veronica and their hybrids are valuable evergreens for shrubberies and other portions of the flower garden; not only are they attractive when in flower, but at every other season, owing to their neat and beautifully-formed foliage. Perhaps the best known species is V. Traversii, which forms a symmetrical rotund bush, developing into fine specimens of perfectly hardy growth. Similar in habit is V. ligustrifolia, but distinct with its privet-like growth. V. Hulkeana, in a sheltered position, is a glorious shrub when in full flower, but in the cooler parts of the country this species succeeds only in greenhouses. Others of neat and compact habit and well adapted for carpeting beds and borders are V. buxifolia, Colensoi glauca, cupressoides or salicornoides, decumbens, Hectori, loganioides, Guthriana, and vernicosa. Another excellent but half-hardy variety, eminently suited for bedding in masses, is V. La Seduisante. It possesses handsome purple foliage, and makes very free growth during the summer months. There are other varieties resembling this one with variously-coloured flowers, but they need to be wintered in cold frames. V. Andersonii variegata makes a splendid ground-work for large beds, if cuttings are taken each year and rooted in the autumn in boxes and allowed to remain in these until they are required for planting in the beds.

Mesembryanthemum.—There are numerous species of Mesembryanthemum of distinct and curiously interesting growth which, though tender, are nevertheless showy plants when used out-of-doors during the summer months. An

open place, exposed to the full glare of the sun, should be selected for them, an ideal site being a dry bank or rockery, with a shallow hungry soil. Under these conditions they will produce their variously-coloured, brilliant flowers very freely. The plants are readily increased by means of cuttings, and are best wintered in a warm greenhouse; they require but little water and attention during that season. A selection of species might include acinaciforme, aurantiacum, aureum, australe, barbatum, bicolor, bulbosum, caulescens, coccineum, corniculatum, diversifolium, echinatum, Ecklonis, falcatum, falciforme, glaucum, Haworthii, multiceps, muricatum, rubricaula, rubroinctum and splendens.

Scented Pelargoniums.—The Scented Geraniums, or Cape Pelargoniums, are closely associated with old-time gardening. They include many interesting varieties with variously-shaped leaves, small, quaint flowers, whilst most of them possess a fragrance of one kind or another. A very interesting bed can soon be established by plunging or planting a selection of these about the middle of June. It is surprising how rapidly the plants grow. There are numerous varieties, but for this purpose only those which have large leaves and much perfume should be employed. When grown on in large pots or tubs, specimen plants are effective for terraces and for placing under verandahs.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Garden, Windsor.

Carrots.—A sowing of Carrots may be made to furnish a late supply of roots: the plants of this batch will not be so liable to an attack of the Carrot fly as those sown a month ago. Thin the plants to 6 inches apart as soon as they are large enough, choosing a dull, damp day for the thinning. Small sowings of Carrots may be made from this date to the middle of July, to furnish a supply of young roots through the season. They should be thinned to 3 or 4 inches apart, and be given frequent dressings of soot during dull weather. Suitable varieties are Early Scarlet Morn and Early Gem. Stir the ground frequently between the rows with the Dutch hoe to keep down the weeds, and loosen the surface of the ground.

Early Potatoes.—The soil between the rows should be deeply stirred with the digging fork before the roots have extended far enough to prevent such work being done without danger of injuring them. If the ground has not been manured for this crop, a dressing of Potato manure should be applied before earthing-up is commenced. The height of the ridges should depend to some extent on the distance between the rows; steep ridges should be avoided, as they would not allow the rains to penetrate the mounds to any extent, to the disadvantage of the crop. On light land the ridges should be made as broad at the top as possible, so that plenty of rain water will soak through and reach the roots. One of the chief reasons for earthing Potatoes is to protect the tubers from the sun-light.

Onions.—Spring-sown Onions will soon require thinning, which should be done gradually, and before the plants are large enough to be checked seriously by the root disturbance. In most cases a distance of 4 or 5 inches will suffice, but if extra large bulbs are desired, double this distance must be allowed. A few rows may be left unthinned to supply small bulbs for pickling purposes. Though deep hoeing is beneficial to most crops, it is not advisable in the case of Onions, which do best in a very firm bed. Weeds, however, may be destroyed with the hoe, but only the very surface of the ground should be disturbed. A little soot dusted over the beds in showery weather will be of great assistance to the plants, but soot should never be applied in dry weather, unless a copious watering is given afterwards.

Staking Peas.—Most of the second early varieties will require staking. New stakes should be used, as old ones are liable to break during rough winds. Do not place too many supports, as the sticks exclude a considerable amount of light, and too many will cause the growth to be drawn and spindly. When drawing the soil about the plants, leave the ridges in such a form that the rain water will be directed to the roots.

FRUITS UNDER GLASS.

By E. GOODACRE, Gardener to Sir ERNEST CASSEL,
G.C.B., Milton Paddocks, Newmarket.

Fig trees in pots.—When the fruits have been gathered from the earliest trees, which will be required for forcing early next season, the trees should be hardened and placed out-of-doors. The pots should be plunged to their rims, selecting a site exposed to full sunshine, but sheltered from strong winds. Keep the trees growing, affording water as required, and an occasional top-dressing of some approved fertiliser.

Early Figs in borders.—When the first crop of fruits has been cleared from the trees, the houses may be kept closer, with plenty of atmospheric moisture, as everything must be done to assist the trees to swell the second batch of fruit. Afford liberal applications of liquid manure and soot water, also a mulching of decayed horse droppings, or manure from a spent Mushroom bed. Give careful attention to ventilating the house, as the foliage will be liable to scorching. Admit fresh air early in the day whenever it appears likely that the sun will shine brightly, but close the house early in the afternoon to retain as much of the sun's heat as possible.

Later Figs.—These trees will require attention according to their different stages of development. In cases where syringing overhead is discontinued, it will be necessary to damp the paths and bare spaces several times daily to promote a moist atmosphere. Houses in which the fruits are ripening should be well ventilated, and the top ventilators may be allowed to remain open both day and night. Tying, stopping and training of the young shoots will require frequent attention; this work should not be delayed or there will be overcrowding of the branches. Insect pests multiply rapidly at this season, and preventive or remedial measures must be taken. One of the most common pests is a small white scale, and should any survive the winter cleansing, they should be destroyed by sponging with an insecticide. Ants are great pests in many places, and they assist in the spreading of scale and other insects by transporting them from one tree to another. They will also destroy the ripe fruits, entering at the aperture at the end of the fruit, and eating the soft central portions. Ants are best destroyed in their nests with cyanide of potassium.

Young vines.—Vines which were raised from eyes early in the year are ready for placing in 10-inch pots. For this purpose a compost similar to that advised for a previous shift should be employed, but the materials may be used in a rougher condition. See the pots are clean and suitably drained, placing a sprinkling of half-inch bones over the corks. Warm the soil to the same temperature as the atmosphere of the vinery, and use it in a fairly dry state, so that it may be rammed firmly in the pots. Care must be exercised in watering for a few weeks after repotting, as until the roots are working freely in the new soil but little moisture will be necessary. Maintain a temperature of 70° to 75° at night time, allowing an increase by sun-heat during the day. Syringe the vines once or twice daily with soft water, and afford the vines every encouragement to make a vigorous and sturdy growth.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Out-door vines.—These do not usually require so much disbudding as vines grown under glass, but in regard to the stopping and tying-in of the shoots they need similar attention. If care is given to these matters, a great deal may be done towards securing good results if the weather is anything like favourable. Vines are amongst the most ornamental climbers, and for this fact alone they are worthy of cultivation where walls or other suitable positions are available. Commence disbudding as soon as it can be distinguished which shoots promise to produce the best bunches, gradually removing them until only the requisite number of shoots is left. One shoot to each spur is generally enough, but sometimes two may be necessary where the spurs are thinly disposed and there is much wall space to cover. The fruit-bearing shoots should be stopped at the first or second leaf beyond the bunch, the shoots should be drawn gradually towards the wall and finally be fastened to it as neatly as possible. All lateral growths should be stopped at the first leaf. If the vines are growing in a

very hot position, or in a light and porous soil, copious supplies of water must be frequently applied to the roots, and the vines should be given occasional waterings of liquid manure from the farmyard after they pass out of flower. Should mildew or red spider attack the foliage at any time, the affected parts should be dusted with flowers of sulphur.

Morello Cherries.—These trees require disbudding in a similar manner to that recommended for Peaches and Nectarines; I have often seen Morellos with the shoots trained far too closely, the walls being smothered with small, weak shoots, which generally produce undersized fruits of inferior quality, and are very difficult to keep free from insect pests. The disbudding should be performed gradually, so that no check is given the trees by the sudden removal of a large number of shoots at one time. If it is found, when tying in the young growths, that more than the required number has been left, pinch the surplus ones to the third or fourth leaf; these will form spurs, and eventually bear fruit. Morellos seldom fail to set their fruits thickly, and, in consequence, it is necessary to thin them where it is desired to have good-sized fruits; an old pair of Grape scissors will be found useful for this purpose.

Sweet Cherries.—The fruits of these should now be set. Continue to examine the trees for black fly, and if any be found let the trees be syringed thoroughly with Quassia Extract or a solution of soft soap, 2 ozs. of the latter to each gallon of water. Attend to the training and pinching of the shoots; those required for extension or for replacing useless branches should be laid in their entire length and be thinly disposed, so that plenty of light and air may reach them; all other shoots not required to be trained in should be pinched at the third or fourth leaf to furnish fruiting spurs for next season.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Birtford, Surrey.

Phalenopsis.—Such plants as *P. Schilleriana*, *P. Sanderiana*, *P. Aphrodite*, *P. amabilis* (grandiflora), *P. Stuartiana*, *P. casta*, *P. leucorrhoda*, and *P. Lueddemanniana* having passed their flowering period, are commencing to make roots and new leaf growth. They should be examined, to ascertain if more rooting space is required, or if the potting materials have deteriorated, and in cases where the baskets have decayed, new ones may be substituted for them. *Phalenopsis* suffer if their roots are disturbed by detaching them from whatever they may be clinging to, the young roots being very susceptible to injury. Therefore, when removing the plants from their old baskets, the potting materials and drainage should be carefully picked out, and the basket plunged into a vessel of tepid soft water for several minutes; then, with a thin-bladed knife, gradually the living roots may be detached from the wood. These plants will succeed in teak baskets, or in teak cylinders, shallow pans, ordinary flower-pots, or even on wooden blocks covered with Sphagnum-moss. Whichever receptacle may be preferred, they should be filled to quite three-fourths of their depth with clean crocks. The plant should be placed in the centre, with the collar well above the rim, carefully arranging the roots over the drainage, and placing a few small crocks over them. The remaining space up to and around the base of the plant should be filled with living Sphagnum-moss, chopped finely and mixed with very small crocks. If the new roots were to get into a bed of moss, which may at any time become saturated through careless waterings, they would decay quickly. Firm potting is advisable. Plants which are healthy and well rooted, and have sufficient room for further development, should be allowed to become rather dry before a top-dressing is applied to them. Weakly plants having few or no roots should be placed in small receptacles, and be suspended to the roof in a position where they will receive shade. As with many Orchids, the principal point in growing *Phalenopsis* is to maintain a suitable atmosphere. The plants come from some of the hottest regions of the East, and therefore require the temperature of the East Indian house, or the warm, humid atmosphere of the plant-stove. Where a house is not set apart for them entirely, the next best place is a position close up to the roof glass on the north or

shady side of the house, where they will obtain plenty of light, but no actual sunshine. All the tender, green-leaved kinds, as *P. violacea*, *P. Lueddemanniana*, *P. Marie*, *P. tetraspis*, *P. speciosa*, *P. sumatrana*, *P. Mannii*, *P. Cornucervii*, *P. denticulata*, and *P. fascinata* are susceptible to injury from the least direct sunshine at any time. Place them, therefore, altogether, so that they may be more conveniently protected by extra shading when the sun is powerful. If placed under the shade of the stippling, as recommended in a former Calendar, applied rather thickly on the glass, the blinds need not be let down nearly so early in the morning, and they may be drawn up much sooner in the afternoon, than would be the case if only the blinds were used. The high temperature of the house can therefore be largely maintained by sun-heat, which is just what *Phalenopsis* delight in; at the same time, the humidity of the atmosphere should be correspondingly high, but on days when there is little or no sunshine, the amount of water used when damping down should be decreased accordingly, as a comparatively low temperature, as maintained by fire-heat alone, will soon cause the delicate leaves to become spotted and diseased. After rebasketing, or resurfacing, very little water will be necessary, and for a time merely spray around the sides of the baskets and the moss on the surface, to keep it in a growing condition. Newly-imported plants of *Phalenopsis* are generally established on blocks of wood, or on a bit of the branch on which they grew. Those that arrive at this season may be removed at once from the blocks and put into baskets, etc., but any imported during autumn and winter should not be so treated until they begin to produce roots in the following spring.

PLANTS UNDER GLASS.

By JOHN DUNN, Gardener to JOSEPH PICKERSGILL, Esq., Barton Hill, Westwood, Yorkshire.

Calceolaria.—The *Calceolarias* are now in full bloom, and it is desirable to make a sowing of seed for raising the earliest batch to flower next year. The seeds should be sown in shallow pans, which should be well drained and filled to within half-an-inch of the rim with a finely-sifted compost of loam, leaf-mould and sand in equal portions. Press the soil moderately firm, and after applying a watering, allow the pans to drain for a few hours, then make the surface perfectly smooth and sow the seeds thinly and evenly on the soil. Place a sheet of glass and some damp moss over each pan, and arrange the pans in a cool, moist frame. As soon as germination takes place, tilt the glasses a little on one side, that the seedlings may be hardened gradually to the light, when they may be removed to a position near the glass. A little later, when the seedlings are large enough to handle, plant them singly into small thumb pots, and shade the plants at all times from hot sunshine. *Calceolarias* should never be allowed to get in the least root-bound, or they will suffer a severe check to growth. They need very great care in watering.

Humea elegans.—Sow seeds of this fragrant plant and treat the seedlings in the early stages as recommended for *Calceolarias*.

Poinsettia pulcherrima.—Take cuttings of this winter-flowering plant at intervals of a few weeks, in order to raise plants of different heights. The first cuttings may be selected as soon as the old plants have produced growths of 2 to 3 inches in length. The cuttings should be removed with a portion of the old wood attached, and, if possible, they should be plunged for a time into fine sand or charcoal to prevent loss of sap from the wound. They should be rooted in small thumb pots, plunged in a hot-bed.

General work.—Spring-raised cuttings will need to be potted on, and in cases where the cuttings have been inserted several together in a pot, extra care must be exercised in dividing these otherwise the roots will suffer considerably. Many plants require shade, which should be provided at once. Plants which have suffered root disturbance recently will be benefited by an occasional spraying with clear water. Pay careful attention to the fires, in order that the water pipes shall not be overheated during periods of bright sunshine. Let the ventilators be so used that, whilst scorching is prevented, there will be no cold draughts to injure the tender plants. The stoves and intermediate houses should be syringed early in the afternoon, closing them whilst they still contain a fair amount of sun-heat.

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Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR JUNE.

THURSDAY, JUNE 2—Linnean Soc. meet.

FRIDAY, JUNE 3—Buenos Ayres International Exh. opens.

SATURDAY, JUNE 4—

Soc. Franc. d'Hort. de Londres meet.

TUESDAY, JUNE 7—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Prof. Henslow on "Survivals among Plants of the Past.") Scottish Hort. Assoc. meet. British Gard. Assoc. Ex. Council meet.

THURSDAY, JUNE 9—

London Branch of B.G.A. Excursion.

SATURDAY, JUNE 11—

R.H.S. Gardens Club Annual Re-union at Wisley.

MONDAY, JUNE 13—

United Hort. Ben. & Prov. Soc. Com. meet.

WEDNESDAY, JUNE 15—Yorkshire Gala (3 days).

THURSDAY, JUNE 16—Linnean Soc. meet.

FRIDAY, JUNE 17—Richmond Royal Horse Sh. (2 days).

TUESDAY, JUNE 21—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. W. Cuthbertson and Mr. Jas. Grieve on "Fifty Years among Pansies and Violas.") R.H.S. Provincial Show at Liverpool in conjunction with the Annual Show of Roy. Agric. Soc. (3 days) (provisional). Roy. Oxfordshire Hort. Soc. Sh.

WEDNESDAY, JUNE 23—

Roy. Agric. Soc. Sh. at Liverpool (Hort. Exh.) (4 days).

FRIDAY, JUNE 24—Midsummer Day. Quarter Day.

TUESDAY, JUNE 28—

Isle of Wight Rose Sh.

WEDNESDAY, JUNE 29—

Richmond Fl. Sh. Southampton Rose Sh. Roy. Soc. Ann. Meet., 4 p.m. Dartford Rose Sh.

THURSDAY, JUNE 30—Canterbury & Kent Rose Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—55°4°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 25 (6 P.M.): Max. 57°; Min. 48°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 26 (10 A.M.): Bar. 30°3; Temp. 69°; Weather—Sunshine.

PROVINCES.—Wednesday, May 25; Max. 59° Ireland S. coast; Min. 58° Yorkshire.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Hardy Bulbs and Plants at 1; Palms, Plants, Ferns, &c., at 8; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Imported Cattleyas and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Temple Show.

The effect of the national mourning was so noticeable at this Show that the Temple Gardens presented a picture of sombreness which was in strange contrast to the gay scenes we are accustomed to witness on these occasions. Not only was the Show robbed of its usual appearance of gaiety, but the number of visitors on the opening day must have been very much less, for it was possible to pass through the larger tents with comparative ease, and the crush in the narrower tent, where the hardy

flowers and similar exhibits were arranged, was not overwhelming.

It is satisfactory, in the circumstances, that the Show itself was equal to any of the 22 exhibitions already held in these historic gardens. The general quality of the exhibits was beyond praise, and a considerable number of new hybrids and varieties of Orchids and other plants were sufficiently meritorious to gain awards from the Committees. Orchids were never shown better or in greater numbers. The brilliant scene inside the large tent which accommodates these plants was freely remarked upon. We missed the exhibits of the President, Sir Trevor Lawrence, and of Lieutenant-Colonel Holford, but the choice plants from Mr. Menteith Oglivie, Sir Jeremiah Colman, Bart., who was awarded the Sherwood Cup, the Duke of Marlborough, and other gentlemen well maintained the prestige of amateur exhibitors. From the trade firms there were marvellous groups, and we may mention those of Messrs. Sander & Son, J. Charlesworth & Co., and Mansell & Hatcher as being amongst the most prominent.

As usual, the Show was favoured by exhibits from Continental cultivators, and Monsieur Vuylsteke, of Ghent, showed further varieties of Odontiodas, surpassing any previously exhibited. The variety named George V. not only possessed attractive colouring, but it was larger than most Odontiodas, and there is every reason to believe that in the future Odontiodas will be obtained equal in size to Odontoglossums. Other novelties of special merit included the beautiful *Miltonia* shown by Messrs. Sander and named after the late Baron Schröder, and the large and richly-coloured *Odontoglossum* from the same firm named in memory of King Edward VII.

Novelties amongst other plants which attracted considerable attention included a double-flowered *Marguerite*, shown by Messrs. Sander, with large white blooms, almost mimicking a *Pyrethrum*; two choice *Rhododendrons*, one named after Princess Juliana and the other bearing the name of Alice, from Messrs. J. Waterer & Son; several new *Roses*, including a brilliant *Wichuraiana* hybrid named *Excelsa*, shown by Messrs. Paul, of Cheshunt, and bearing large racemes of flowers, so brightly coloured that they were frequently described as scarlet. It is satisfactory that this magnificent variety has already proved to be perfectly hardy. Messrs. Cuthbert exhibited a fine new variety of *Rhododendron sinense* named *Florodora*; Mr. R. C. Notcutt, a variety of *Rhus typhina* with lacinated leaves; Messrs. Blackmore & Langdon, a very beautiful tuberous *Begonia* named *Rose Queen*; Mr. A. J. Bruce, *Sarracenia Willmottæ*; and the Director of the Royal Gardens, Kew, a hybrid *Cytisus* named *C. Dallimorei*.

In addition to the novelties which gained awards, we may mention a new *Androsace*, with white flowers, exhibited by Messrs. Jas. Veitch, and a Composite shown by Mr. W. Marshall, Chairman of the Floral Committee. The *Androsace* is a Chinese species, collected by Mr. Wilson, and it is illustrated on another page of this issue. Unfortunately, the flowers had passed their best, and the plant could not be submitted to the Committee. Mr. Marshall's Composite was raised from seed which was erroneously believed to be seed of *Aster diplostephioides*. The seedling is a new species

and it will receive the name of *Aster falconeri*. For the rest, the usual displays of indoor and outdoor flowers were as brilliant as ever. Messrs. Sutton, Carter, and others showed magnificent *Calceolarias*, *Cinerarias*, and other florists' flowers. Messrs. Sutton's *Gode-tias* represented a grand strain. The *Roses* appear to advance from year to year; especially is this seen in the numerous varieties of the *Rambler*, the *Wichuraiana*, and the hybrid tea sections. The groups in the large tent shown by Messrs. Paul were remarkable for the number of colours and shades represented in the flowers. *Streptocarpuses*, exhibited by Messrs. Jas. Veitch & Sons and others, continue to show improvement, and the beautiful hybrid *Gerberas* were represented in several collections. Amongst hardy flowers the *Tulips* always constitute a prominent feature at the Temple Show, and numerous varieties were exhibited on this occasion. Amongst the most interesting were some seedlings from Mr. A. D. Hall, almost the only raiser of these flowers.

Messrs. James Carter & Co. designed a Japanese garden, which is represented in one of our illustrations.

It is to be regretted that the display of fruits and vegetables was so meagre. This may partly be accounted for by the cold weather which characterised the present Spring, but it can scarcely be contended it is impossible to get a good exhibition of these products at the end of May. Both fruits and vegetables were better represented at the Brussels Show than at the Temple, notwithstanding the Belgian Exhibition took place three weeks earlier. The Temple Show is primarily a flower show; at the same time there are good reasons for hoping that the value of fruits and vegetables in the economy of the nation may receive expression in future displays. Visitors were grateful for the magnificent group of fruit trees in pots exhibited by Messrs. Rivers & Sons; the extraordinary fine vegetables from the Hon. Vicary Gibbs, and the choice *Strawberries* shown by Messrs. Laxton Bros.

The weather was fair during the whole exhibition, but, owing to an east wind, the temperature showed a great difference from the extreme heat which prevailed for several days previous to the opening of the exhibition. The absence of the indefatigable secretary, the Rev. W. Wilks, through indisposition, was greatly regretted, and it is hoped that the indisposition is merely temporary.

In a recent letter to the *Times* Lord Walsingham draws attention to the Plane tree as an unsuspected cause of disease. Nearly twenty years ago he was led

to the belief that a serious attack of bronchial catarrh and pneumonia in a member of his family was to be attributed to the irritation set up by the minute spicules of the fruit of the Plane tree, which were found floating in the air with road-dust, in an avenue of these trees near Cannes. He states that further observations have tended to confirm the view that coughs, colds, inflamed eyes and throat troubles are prevalent where these trees abound.

The spicules referred to are long-pointed hairs, which surround the achenes composing

the fruit of the Plane. Lord Walsingham adds that, during last month, Dr. Henry, the University Reader in Forestry at Cambridge, found these irritant spicules in abundance in the dust floating in the air near Plane trees at Kew and in Berkeley Square in London. If these were found in the throat of patients residing near Planes, and suffering from throat irritation, there would be a very strong case against the tree.

It is interesting to note that long ago the ancient authors, Dioscorides and Galen, knew of the irritating qualities of the Plane. The latter says:—"It is necessary to guard against the downy hairs which are found on the undersides of the leaves of this tree, for they injure the throat, drying it up and irritating it violently; they alter also the voice, and injure the eyes and ears."

In 1873 Dr. Durvell drew the attention of the authorities in Alsace to the injurious character of the Plane tree, attributing its irritating qualities to the pubescent hairs found on the lower surfaces of the young leaves. He advised all who were inclined to suffer from throat troubles to avoid the neighbourhood of these trees in Spring and Summer, and recommended the removal of Planes from gardens and avenues used as public promenades, and especially such as are associated with schools, hospitals, convents and prisons, where children and adults are compelled to live near the trees for considerable periods of time.

Although the older writers considered the hairs from the young leaves as the irritating agents, it is likely that the fruit spicules are equally injurious. A severe case of bronchial irritation, mentioned by Lord Walsingham as occurring at Acqui, in North Italy, apparently in consequence of a drive on a windy day through a well-known avenue of Planes, could not be due to the hairs from the leaves, as the latter were still in the bud.

OUR SUPPLEMENTARY ILLUSTRATION.—*Cattleya Enid* var. *Karthaussii* (Warszewiczii × *Mossiae*) was raised by Mr. C. F. KARTHAUS, Potsdam, Germany, who states that the flower is remarkable for its size and rich colouring, the variety ranking as one of the finest *Cattleyas* in existence. The first blooms that developed measured more than 6 inches across, but this year the largest flower measured 8 inches, each petal being more than 3 inches in breadth. Mr. KARTHAUS has also sent us a painting of a *Cattleya* which flowered for the first time in 1909. The sepals and petals are bluish, and the lip is also of this tone, but with a tinge of purple. The parentage is recorded as *C. speciosissima* × *C. Hardyana*, but this is presumed to be an error. Another hybrid worthy of note is flowering for the first time at Potsdam. It was raised from *C. Mossiae* Wagneri, and has pure white sepals and petals, the lip also being white but with yellow on either side.

A GARDENER'S PRESENT FROM THE GERMAN EMPEROR.—Mr. T. CHALLIS, gardener to the Earl of PEMBROKE at Wilton Park, has recently received a present from the Emperor WILLIAM II., in return for a few plants of *Cedrus libani* which were raised at Wilton from seeds obtained from one of the original specimens of the species introduced into these islands. The Emperor's present is a scarf pin containing 20 diamonds and three rubies. The pin represents the letter "W" surmounted by a crown.

CENTENARY OF LOUIS VAN HOUTTE.—We have already drawn attention to the efforts that are being made by Belgian horticulturists to celebrate the centenary of the birth of LOUIS VAN HOUTTE on June 26 next. We are now informed that the list of subscriptions towards the expenses connected with the celebrations will be closed at the end of the present month. Up to the present a sum of about £280 has been subscribed, and we are glad to see that in the list of donors British horticulturists are represented by one or two subscribers. The committee and its president, Mons. FREDERICK BURVENICH, have received an encouraging letter

water were germinated at 60° F. The tabular results indicate a decided increase in the speed of germination after steeping for 24 hours, the rate diminishing when the seeds were acted upon for shorter or longer periods than this. Whether the ammonia acts as a direct stimulus to growth is however not clear from the records, as the germination of "control" seeds, after steeping in water only for the same time, is not given in the report.

MADRESFIELD COURT GARDENS.—These beautiful gardens were thrown open to the public on Whit Monday in the interests of the Royal



THE TEMPLE SHOW.

FIG. 150.—ODONTIODA KING GEORGE V., EXHIBITED BY MONS. VUYLSTERE.

(Received a First-Class Certificate.)

from the Société Royale d'Agriculture et Botanique of Ghent, accompanied by a donation of 1,000 francs.

EFFECT OF AMMONIA ON GERMINATION.—During last year tests were made at the HARPER ADAMS' Agricultural College to determine the effect of a solution of ammonia upon the germination of Broad Beans. The seeds were steeped in a 10 per cent. solution of ammonia from 1 to 48 hours, and after washing in

Gardeners' Orphan Fund. The noble owner, Earl BEAUCHAMP, takes a deep interest in the charity, being president of the local branch at Worcester. Nearly £25 was taken at the gates, although only a small charge was made for admission, and the amount would probably have been larger but for a thunderstorm early in the afternoon. The flowering shrubs and spring flowers, including bulbs naturalised in the grass, were very beautiful.

LINNEAN SOCIETY.—A meeting will be held on Thursday, June 2, at 8 p.m., when a paper will be read on "The Flora of Gazaland," by Dr. A. B. RENDLE, F.R.S.

R.H.S. GARDENS CLUB.—The annual meeting will be held at Wisley on Saturday, June 11. A train, leaving Waterloo at 2.28, arriving at Weybridge 3.10, will be met by a conveyance from the gardens. The secretary, Mr. R. J. WALLIS, Cudworth, Newdigate, Dorking, will be glad to hear from those intending to be present.

A RHODODENDRON EXHIBITION.—The annual display of Rhododendrons by Messrs. JOHN WATERER & SONS, LTD., in the Royal Botanic Society's Gardens will be opened to the public on June 6, and the show will be continued throughout the month.

FINSBURY SQUARE.—A proposal is on foot to throw open the garden at Finsbury Square as a public recreation ground. According to the *City Press*, there is considerable opposition to the suggestion from the residents of adjoining property, notwithstanding the procedure would be only reverting to former practice, as the Square was at one time a playground for the citizens, and remained, with Moorfields, common ground until the erection of Moorgate in 1415. The residents regard it as a hardship to be asked to pass on to the public a privilege they themselves have enjoyed exclusively for many years past. The objection that the opening of the garden must tend to deprive the Square of the privacy that now characterises it, may appear reasonable, but it has to be remembered that the public has the right of admittance to the gardens at Lincoln's Inn, and what could be quieter than these?

MISS WILLMOTT'S ROSE BOOK.—Messrs. HENRY SOTHERAN & Co. announce that Miss WILLMOTT's book on Roses, entitled *Genus Rosa*, will shortly be published. The work will contain 129 coloured plates in addition to 56 drawings of fruits in black and white, with corresponding letterpress, giving the description in Latin and English, the full synonymy, and details of information relating to each Rose. In addition there will also be an illustrated glossary and index. The book will give an account with illustrations of the most distinct and interesting species of the Roses of the Old and New Worlds; some natural hybrids and a few first crosses and old garden Roses, necessary to the complete treatment of the subject. Miss WILLMOTT has been assisted in the work by Mr. JOHN GILBERT BAKER, Canon ELLACOMBE, the Rev. CHARLES WOLLEY DODD, Professor SARGENT, and Colonel PRAIN. The edition is limited to 1,000 copies, and will be completed in 20 to 24 parts, small folio, at intervals of one month, commencing in July. The subscription price is £1 1s. for each part.

FORESTRY AT CAMBRIDGE.—The third annual report of the Forestry Committee at Cambridge is most encouraging. We learn that the course of instruction during the past year has comprised lectures and demonstrations by the Reader, Dr. AUGUSTINE HENRY, M.A., which have been supplemented by excursions to woods and plantations in the neighbourhood of Cambridge. The lectures have been attended mainly by students who are taking the course for Diploma in Agriculture. The attendance was: 5 in the Easter term, 1909; 18 in the Michaelmas term, 1909; and 18 in the Lent term, 1910. Mr. E. R. BURDON gave once a week in the Lent term a special course of lectures and laboratory work on the classification and structure of timber. In the Easter term, 1909, the Reader gave at Cambridge a course of six lectures on trees and elementary forestry, with demonstrations in the University Botanic Garden, to school teachers and others, under the auspices of the Education Committee of the Cambridge County Council. The attendance averaged 80. In June of

last year Dr. HENRY commenced a series of experimental sowings of different kinds of Elms, which have yielded interesting results, showing that what were supposed hitherto to be varieties of one species, of unknown origin, are in reality combinations of two species, in which the Mendelian ratios are observed. Incidentally these experiments have drawn attention to the astonishing vigour displayed by certain first-crosses in trees, all of which hitherto had arisen in the wild state. An attempt is being made this year to produce artificially similar hybrids in the case of the more valuable kinds of trees; and for the first time almost, the production of new breeds of forest trees is being tried. We are glad to know that a plot on the University Farm has been assigned by the Agricultural Department for forestry experiments; about 5,300 seedling trees, of known pedigrees, have been already planted out. A small plot of *Eucommia ulmoides* has been established near Norwich. This tree, which was discovered by Dr. HENRY in the mountains of Central China, is perfectly hardy in this country. Its bark produces 5 per cent. of rubber, the quality of which, however, is still a matter of doubt, as only minute quantities have been tested. The investigation into the possible influence of Chermes insects on the spread of Larch canker, which Mr. BURDON is supervising in 14 experimental plantations, distributed through England, Ireland, and Scotland, is progressing satisfactorily. Reports show that the infection of certain groups of trees in each plantation with Chermes has been successful. Other groups in the same plantations have been successfully kept free from Chermes by spraying operations. In regard to the need of museum and laboratory accommodation for research and teaching in forestry, it is gratifying to know that, although no public appeal has been made for the funds required for this purpose, generous donations, amounting to £2,451, have been already either given or promised, including a sum of £1,000 from Mr. H. J. ELWES, F.R.S. A site for a forestry building has been chosen.

A MODEL "FRENCH" GARDEN IN A BIRMINGHAM PARK.—From the 16th to 20th inst. large numbers of people were attracted to the Warley Park, Birmingham, to inspect, free of charge, a model French garden constructed by Messrs. SUTTON & SONS, Reading. This garden was intended to demonstrate the system of intensive culture practised in France; it covered an area of about 1,500 square feet, and was divided into 12 sections, each section consisting of a low hotbed. Four shallow frames, each 12 feet 6 inches long by 4 feet 4 inches wide, occupied separate beds, and 140 cloches were distributed over seven other beds. The crops were exhibited in various stages of growth; from the seedling to the time of gathering. They included, amongst others, Cabbages, Carrots, Cauliflowers, Endives, Lettuces, Radishes, Spinach, Turnips, Peas, Tomatoes, Cantaloupe Melons, and Strawberries. Radishes, Carrots, Lettuces and Cabbages were exhibited growing under the same cloche, and all these, with Cauliflowers added, were to be seen in good condition growing under another cloche. As one crop matures another crop is in course of development, and so the series goes on. In addition to Messrs. SUTTON's exhibit, Messrs. JOHN WATERER & SONS, Bagshot, Surrey, had a choice collection of hybrid Rhododendrons in flower, and Messrs. BAKERS, Wolverhampton, showed large clumps of new varieties of mossy Saxifragas, together with a good strain of Polyanthes and small, shapely Conifers. During recent years, the acreage of the parks and gardens under the control of the Birmingham City Council has been much increased. On Whit Monday, the 16th inst., when the "French" gardening exhibit was open to public inspection, upwards of 40 acres of ground in the occupation of a golf club, forming part of Warley Park, was also opened to the public for the first time by the Lord Mayor of Birmingham.

FLORAL TRIBUTES TO KING EDWARD VII.

THE widespread grief and loyal devotion of British subjects to their late Sovereign was seen in the thousands of floral tributes which were sent to Windsor for the funeral. It was estimated that the number was probably nearly 6,000; these included some of the most beautiful floral designs it is possible to conceive. Lying beside the costly tributes were also to be seen the more humble expressions of loyalty from the poorest people.

The Queen-Mother's contribution was made at the Royal Gardens, Frogmore. It was a beautiful cross of Cattleyas, *Odontoglossums* and Lilies of the Valley. Some of the foreign kings brought artificial tributes in gold and silver colours. The rulers and governments of some of Britain's far-off dependencies were responsible for many elaborate and costly designs. Perhaps the most beautiful trophy was the wreath sent by the Sultan of Zanzibar; this was composed chiefly of Cattleyas, *Lælias*, *Odontoglossums*, *Lilium longiflorum album* and Lilies of the Valley. This huge wreath measured about 8 feet in diameter. The President of Chili's wreath was also a magnificent specimen; this was composed of Blue Cornflowers, with bouquets of Carnations and Orchids at intervals. A notable wreath, sent by Sir Herbert and Lady Beerbohm Tree, represented a standing cross covered entirely with Yellow Iris and Yellow Arum Lilies and tied with yellow ribbon.

The Greek community in London sent a lovely tribute in the form of a column about 5 feet high, standing on a base covered with White Stocks; several bouquets of beautiful Orchids were arranged round it and a larger one at the base, making the whole very effective. Mr. Theodore Roosevelt sent a magnificent wreath of Cattleyas and *Odontoglossums*. Messrs. Sutton & Sons, Reading, sent a very striking tribute in the form of a large oval wreath some 7 or 8 feet through; this was made entirely with White *Lilium longiflorum* placed closely together—there must have been several hundreds of flowers. The wreath sent by the Indian Army was most elaborate; this was formed chiefly with Cattleyas, *Odontoglossums*, White Heather and Asparagus. The tribute from the Japanese Ambassador was made entirely of yellow flowers—Roses, Arums and Iris being the chief sorts. The French Republic sent a most striking wreath made entirely with La France Roses and Lilies of the Valley. That from the Falkland Islands had the form of a crown, beautifully made with Lilies of the Valley resting on a cushion of Blue Violets. A wreath from the Duchesse d'Orleans was made with Pink *Malmaison* Carnations and *Odontoglossums*. Prince and Princess Marat's contribution to the floral tributes was one of the most beautiful; the base was composed of hundreds of bunches of Marie Louise Violets, several bouquets of *Odontoglossums* and Asparagus being placed round at suitable intervals. The City of London's tribute was a large wreath of Laurel leaves encircling the borough arms, which were carried out with Red and White Carnations.

One of the most striking wreaths was that sent by the City of Edinburgh. This was made entirely with Ericas in six varieties. Another beautiful wreath came from the Société des Steplechases de France; this was composed chiefly of Orchids, but small plants of *Caladiums*, *Adiantum* Fern, *Pandanus* and *Asparagus plumosus* were interspersed with excellent effect. The "Women of Lancaster" were represented by a huge wreath composed entirely of Red Roses; there must have been several hundreds of flowers in this emblem. The wreath from the Rt. Hon. Joseph and Mrs. Chamberlain was composed of choice Orchids. Mr. Leopold de Rothschild sent a beautiful tribute composed entirely of *Odontoglossums* and sprays of Asparagus. The City of Cardiff sent a large shield composed of double white *Narcissus* as a groundwork, and the city arms were represented in the natural colours with other choice flowers. All the floral emblems were placed in the cloisters and on the lawns around St. George's Chapel. Some were arranged on stands and easels, while others were laid on the grass.

The public were admitted to view the flowers on Friday, Saturday and Sunday; it was estimated that upwards of 100,000 people took advantage of this privilege, many having travelled long distances in order to do so. II

ROYAL HORTICULTURAL SOCIETY.

Temple Flower Show.

MAY 24-26.

THE most important of the exhibitions held each year by the Royal Horticultural Society, took place on these dates, in the gardens of the Inner Temple. The opening day was fine, and, although the weather turned cold, it remained fair throughout the exhibition. The arrangements in the open were rather different on this occasion, everything being done to avoid obstructing the views from the windows of the Benchers' quarters. For this reason, mainly, the refreshment tent was dispensed with. The exhibition tents, however, occupied the same positions. The arrangements were admirable, and everything passed off favourably. The grouping of the novelties in a tent by themselves was commendable; but unfortunately many of the plants that received Awards were distributed in the other tents.

For the courtesy and help given by the secretaries, the superintendent, Mr. S. T. Wright, and the members of the Vincent Hall staff, including Mr. Reader and Mr. Plowman, the thanks of exhibitors, and ourselves, are due.

ORCHID COMMITTEE.

Present: Harry J. Veitch, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, de B. Crawshay, H. J. Chapman, W. Boxall, J. Gurney Fowler, W. Thompson, H. A. Tracy, H. G. Alexander, A. Dye, W. P. Bound, F. M. Ogilvie, W. H. White, Gurney Wilson, W. H. Hatcher, A. A. McBean, W. Cobb, F. Sander, R. G. Thwaites, W. Bolton, J. Wilson Potter, and E. Ashworth.

So far as the general show of Orchids was concerned, the quality was uniformly good, and, taken throughout, better than at any of the former shows. There were many novelties found worthy of Awards, but, at the same time, there were few new breaks in the field worked by the hybridiser, the improvements being generally on lines already known.

The amateur Orchid growers found worthy champions in F. Menteith Ogilvie, Esq., Sir Jeremiah Colman, Bart., J. Talbot Clifton, Esq., and His Grace the Duke of Marlborough, together with some other exhibitors of smaller selections.

F. MENTIETH OGILVIE, Esq. (gr. Mr. Balmforth), staged one of the most extensive and effective groups, containing plants uniformly good. In the centre of the group the varieties of *Miltunia vexillaria* were splendidly represented, *M. v. Chelseiensis*, with a profusion of rose-tinted flowers, the white *M. v. virginialis*, and others being prominent. Also fine varieties of *M. Bleuana* and *M. Hyeana*. In front could be seen a grand example of *Brasso-Lælio-Cattleya Veitchii*, with four flowers, a fine lot of *Lælio-Cattleya Fascinator*, good *Brasso-Cattleya Digbyana Mossiae*, and the clear white *B.-C. Queen Alexandra*. In other parts of the group there was a fine selection of *Lælia purpurata*, including the white variety *Queen Alexandra*; a selection of the pure white *Cattleya Dusseldorfei Undine*, with a setting of the emerald-green and white *Cypripedium callosum Sanderæ*, *C. Lawrenceanum Hyeana*, and *C. Maudiae*. Behind these were a batch of *C. Lawrenceanum*, including the dark-coloured variety *Hackbridgense*, the scarlet *Renanthera Imshoottiana*, *Odontioda Charlesworthii*, and other *Odontiodas*. One new form of *Odontioda*, which opens its flowers rich scarlet and afterwards changes to rosy-mauve, was peculiar. *Odontoglossums* were also finely represented, two patches of yellow *O. luteo-purpureum Vuylstekeanum* being specially effective. Among the *O. crispum*, the handsomely-blotched *O. c. Empress of India* and others were noted, and also *Diacrium bicornutum*, a very nice, deep-yellow *Dendrobium Thwaitesiae Veitch's* variety, and many other excellently-bloomed rare forms.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gaton Park, Reigate (gr. Mr. Collier), staged a remark-

able group replete in rare species of botanical interest, and well supplied with good hybrids, the red *Odontiodas* raised at Gatton Park being specially effective. The graceful sprays of the deep purple *Odontoglossum Thompsonianum*, raised at Gatton, were effectively displayed, and some new hybrid *Odontoglossums*, including *O. Astarte* (*tripudians* × *Harryanum*) and *O. Duke of Cornwall*, were interesting. Some rarely-seen plants were represented by *Bulbophyllum biflorum*, *B. Lobbii Colossus*, *B. Siamense*, the very remarkable *B. inflatum*, with an ovate head of hairy, greenish flowers; *B. Godseffianum*, *B. leopardinum*, *Stanhopea saccata*, the rosy-carmine *Broughtonia sanguinea*, *Polystachya pubescens*, the elegant little *Platyclinis cornuta*, the singular little *Eria pannea*, with terete, woolly leaves and flowers, *Lycaste lasioglossa*, *Oncidium pulchellum*, *Masdevallia O'Brieniana*, and many other interesting *Masdevallias*; the singular *Cryptochilus sanguinea*, *Dendrobium canaliculatum*, and many other species.

a long, drooping spray of cream-white flowers with purple markings on the lip; a good white *Cattleya* Mrs. Myra Peeters and a good selection of *Odontoglossums*.

His Grace the Duke of MARLBOROUGH, Blenheim Palace (gr. Mr. Hunter), staged an effective group, in which the best plant was *Lælio-Cattleya luminosa magnifica* (see Awards). The centre of the group was of good white *Phalænopsis amabilis Rimestadiana*, in front of which were *Cattleya Empress Frederick*, *C. Lord Rothschild*, and other hybrids. On each side were arrangements of *Dendrobium Phalænopsis*, *Odontoglossum crispum*, *Cypripedium callosum Sanderæ*, *C. bellatulum*, and forms of *Lælia purpurata*, one hybrid between that species and *L.-C. Hyeana* being of very fine colour.

MESSRS. SANDER & SONS, St. Albans, staged an extensive and finely-arranged group. All the plants were of good quality, and a large number of them new. The *Odontoglossums* and *Miltonias* were specially fine, and two First-class



FIG. 151.—MILTUNIA BLEUANA "QUEEN MARY" EXHIBITED BY MESSRS. CHARLESWORTH AND CO. AT THE TEMPLE SHOW.

J. TALBOT CLIFTON, Esq., Lytham Hall, Lytham (gr. Mr. Float), staged a very interesting group, in which the *Vandas*, *Aërides*, and *Phalænopsis*, that make the collection noted, were prominent. There was a good display of the white *Phalænopsis amabilis Rimestadiana*, a very fine variety of *P. violacea*, and another of the now extremely rare *P. sumatrana*, with wax-like, cream-coloured flowers, finely marked with rose-purple. *Aërides Fieldingii*, *A. expansum*, *A. Houlettianum*, and other *Aërides*, *Vanda tricolor*, *V. Parishii*, *V. cœrulescens*, and other *Vandas* and *Saccolabiums* were also included, and among specially fine plants were *Lælio-Cattleya Aphrodite* var. *Mark Hambourg* (see Awards), *Cattleya Mossiae Reineckiana Hardy's* variety, a clear, white flower, with magenta front to the lip, *C. M. Hardyana*, with striped sepals and petals, *Cymbidium Lowianum concolor*, *Miltunia spectabilis radians*, with distinct, rose-coloured lines on the lip, *Cattleya Mendelii Lady Dorrington*, a very distinct and delicately-tinted flower, the pretty white *Disa sagittalis*, and several other South African terrestrial Orchids; *Lycaste tricolor rosea*, *Lacena bicolor Sander's* variety, with

Certificates, two Awards of Merit, and two Botanical Certificates were granted. The centre of the group at the back was of a noble specimen of *Cymbidium Lowianum*, with white *Dendrobium nobile*, *Lælio-Cattleyas*, and other hybrids in front, the foreground having a fine white *Brasso-Cattleya Queen Alexandra* with nine flowers, and some new and rare Orchids from Peru, including a very singular *Gongora*, a curious *Mormodes* with pale greenish flowers, and the new *Lycaste peruviana*. The high parts on the sides were of pure white *Phalænopsis Rimestadiana*, with scarlet *Renanthera Imshoottiana*, the ends of the group being formed of spotted varieties of *Odontoglossum crispum* and hybrid *Odontoglossums* with bright scarlet *Odontiodas*. One which exhibited the brightest scarlet was *O. Cooksoniae* var. *Brilliant*. Very remarkable plants noted were *Miltunia vexillaria Memoria Baron Schröder*, a charming flower resulting from home-raised crossing of *M. vexillaria*; *Odontoglossum Memoria King Edward VII.*, both of which secured First-class Certificates; *O. amabilis Dreadnought* and *O. eximium Emperor*, both very fine; *Miltunia vexillaria Memoria G. D.*

Owen, unique in its fine flower with rich crimson mask; a very fine series of Brasso-Cattleyas, one of the forms of Veitchii being of a uniform deep rose; Houletia Sanderi, with wax-like, cream-coloured flowers; some very fine Lælio-Cattleyas, including L.-C. Aphrodite The Duke, a handsome flower; L.-C. Henry Greenwood var. Othello, very dark in tint; several Cattleya Mossiæ, flowering from a new importation and very rich in colour, one being tinted slate-blue; two fine plants of Cirrhopetalum robustum, a very singular Bulbophyllum with thick scapes having hairy-lipped flowers of dusky hue; Ornithochilus fuscus, with insect-like flowers; Eria ornata (armeniaca), with red lips to the tomentose flowers and large apricot-yellow bracts; Catasetum tabulare, with a raised table on the labellum, and a great variety of other rare species. In the cave-like depressions scarlet Sophronitis, with white Cypripedium niveum, red Cochlioda Noezliana, and other brilliant, dwarf species were arranged.

Bleuana Queen Mary was a very fine and distinct form of new colouring, the clear milk-white flowers having a well-defined mauve mask at the base of the lip. Cattleya intermedia Aquini, with its petals tipped with purple like the lip, was very singular. Cypripedium caudatum was grand. Dendrobium Phalænopsis was arranged with white D. nobile, Cattleyas and Brasso-Cattleyas, and C. Mossiæ King Haakon and C. M. King Alfonso. One of the most remarkable plants in the show, from a botanist's point of view, was the Disa lugens, with a strong spike of nine cream-coloured flowers, veined with purple, the large, deeply-fringed lip being like a fine greenish Moss and the structure altogether remarkable and pretty. Disa sagittalis, Oncidium pulchellum, Catasetum cristatum, with a spiny, white lip, were all remarkable; and among the Lælio-Cattleyas, L.-C. Fascinator King George V. was the finest variety.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury Park (gr. Mr. Reynolds) admirably filled in the

bling O. c. Graireanum, with orange-tinted brown blotches and flowering for the first time. Among specially interesting and pretty species were Dendrobium nudum, with a spray of three pale yellow flowers marked with purple on the lip, the large mentum of the flowers being very peculiar; Masdevallia O'Brieniana and other dwarf Masdevallias; Bifrenaria pubigera, a purple-tinted species of the B. Harrisoniæ class; Pleurothallis Birchenallii, Bulbophyllum siamense, Brassia brachiata major (a very fine Brassia); Oncidium ampliolum, O. unicorn, Cymbidium Schröderi, &c. Among the hybrids could be seen the forms of Lælio-Cattleya Fascinator, L.-C. Aphrodite, Cypripediums, including the large and dark-coloured C. Woottonii, some pretty Brasso-Cattleyas, Epidendrum elegantulum, and others.

Messrs. J. CYPHER & SONS, Cheltenham, staged a good group, in which the forms of Miltonia vexillaria were very effective, arranged with handsome Odontoglossums, Cattleyas, and other kinds. At the back of the group the varie-



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FIG. 152.—MESSRS. MANSELL AND HATCHER'S EXHIBIT OF ORCHIDS.

Messrs. CHARLESWORTH & Co., Haywards Heath, had a grand group very tastefully arranged. The central plant was a specimen of Cattleya Lawrenceana Mary Regina, the first albino of this long-cultivated species to appear. This was awarded a well-merited First-class Certificate, a like honour falling to Sobralia Charlesworthii. Cattleya Mendelii Queen Maud, a charming white variety with pale rose front to the lip, received an Award of Merit. The centre of the group at the back was of fine, white Phalænopsis, arching over a setting of rich, deep rose Miltonia vexillaria Empress Augusta Victoria, beside them being a selection of scarlet Odontioda Charlesworthii and other Odontiodas, whilst specimens of Cochlioda Noezliana were arranged in the lower parts. Hybrid Odontoglossums and forms of O. crispum were excellently well shown, among the former being O. Ceres and O. Goodsonii, both wide crosses which improve greatly as they become established. Among the Miltonias, Miltonia

end of the central staging with a grand group of Vanda teres most cleverly arranged, the plants being densely set with their fine rose and white flowers. The present exhibit was superior to any yet shown, and it contained between 400 and 500 plants. Every year this fine Orchid is bloomed well by Mr. Reynolds, who seems to understand its requirements thoroughly.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, staged a very fine group, in which the Dendrobiums and Cattleyas were displayed and rare species well represented. In the centre was a group of Phalænopsis Rimestadiana, with Cattleya Mossiæ of excellent quality beneath, C. M. la Vierge being a pure white and C. M. Bush Hill Park variety also white. We noticed Cattleya Parthenia, C. Mendelii, C. Düsseldorfei Undine, many strong spikes of Oncidium Marshallianum, Coelogyne Dayana, Cattleya intermedia cœrulea with slate-blue lip, a good selection of Odontoglossums, including some pretty hybrids, and a finely-blotched O. crispum resem-

ties of Lælia purpurata, which Messrs. CYPHER cultivate uncommonly well, were fine features. In the front was a mass of Cattleya Skinneri, with good C. Mendelii, C. Schröderæ, and C. Mossiæ; also a plant of the fine Sophro-Lælia Phroso. A little batch of Cypripedium bellatulum, another of Dendrobium nobile virginale, a few very dark-coloured hybrid Odontoglossums were tastefully arranged among fine white O. crispum. Others noted were Lycaste Skinneri alba, Coelogyne speciosa, a grand plant of Dendrobium acuminatum, with a spike of 15 pink and rose-coloured flowers; good Cypripedium callosum Sanderæ, a batch of Dendrobium Dearei, D. Nestor, Cattleya Mossiæ "Peach Blossom" of a very delicate tint, and other good things were included.

Messrs. MANSELL & HATCHER, Rawdon, Yorks., staged one of the most effective groups. It contained good representatives of most of the showy species. The centre was composed of Phalænopsis, with good Odontoglossums on either side, and

a large number of the reddish-scarlet *Renanthera lmschootiana*, which has never been so well shown. Salient plants were several finely-coloured *Dendrobium Goldiei*, with some white *D. nobile*; a very distinct *D. Chessingtonense*, with deep yellow flowers tinged with purple; *Cymbidium Lowianum concolor*, some very fine *Cattleya Mendelii*, including the charming variety *Princess Victoria* (see Awards), *Cattleya Mossiæ* *The Monarch*, a pink-tinted, large flower; *Cypripedium Gowerianum magnificum* Birken-

toglossums, including a fine new spotted *O. crispum* and *O. c. xanthotes* Vine House variety, of perfect shape and pure white, with a few orange-coloured spots. Others noted were *Lælio-Cattleya G. S. Ball*, *Lycaste Balliæ*, *Cypripedium A. Dimmock*, *Odontoglossum Groganum*, *Cymbidium Lowianum concolor*, &c.

Messrs. WILLIAM BULL & SONS, Chelsea, staged a group containing several very good *Odontoglossums*, including *O. crispum* King George V., a heavily-blotched variety, the colour

Mr. J. ROBSON, Altrincham, staged a small group of *Miltonia vexillaria* and *Odontoglossums*. *Miltonia Robsonæ* (Roezlii \times *vexillaria* Queen Alexandra) was a very handsome flower; *Odontoglossum crispum Evansianum*, a grand variety, with deep claret-coloured blotches almost covering the segments except the white margin. There were also some finely-coloured hybrid *Odontoglossums*.

Messrs. JAS. VEITCH & SONS, Chelsea, in the centre of their group of fine foliage plants had an arrangement made up of several of their superb *Brasso-Lælio-Cattleya Veitchii*, which here, as in other groups where it was shown, represented one of the finest hybrids yet raised, a qualification which equally applies to the fine dark *Lælio-Cattleya Dominiana langleyensis*, also shown by Messrs. VEITCH, together with good *Odontoglossums*, *Cattleya Dusseldorfei* Undine, &c.

WILLIAM BOLTON, Esq., Wilderspool, Warrington, staged a selection of very fine *Odontoglossums* and *Cattleyas*.

Mr. HARRY DIXON, Spencer Park Nurseries, Wandsworth Common, staged a pretty group of *Miltonia vexillaria*, *Odontoglossum crispum*, one of which was a finely-blotched form.

RICHARD ASHWORTH, Esq., Ashlands Hall, Newchurch (gr. Mr. W. Gilden), staged a good group of fine *Odontoglossums* and *Cypripediums*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), again showed the superb *Cattleya Mendelii* His Majesty the King, which received a First-class Certificate in 1908 and whose finely-formed blush-tinted flowers place it in the front rank of good *Cattleyas*; also *C. Mossiæ* *Duchess of Norfolk*, a pretty blush-white flower with much orange colour on the lip; *C. Mendelii* Mrs. O. M. Bradshaw, with flowers delicately veined with pink and having a magenta front to the lip; and *Odontoglossum Armstrongiæ*, a finely-blotched hybrid.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed the handsome rose-tinted *Odontoglossum amabile* *Fowlerianum* with two fine spikes.

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed *Cypripedium Mary Amelia* (Lord Derby \times *Godefroyæ leucochilum*), a distinct hybrid of good form and dark colour.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Memoria King Edward VII. (see fig. 153), from Messrs. SANDER & SONS.—A grand *Odontoglossum*, with large flowers having equally broad segments, the greater part covered with deep claret-purple blotches, the margins and small inner markings being white.

Miltonia Memoria Baron Schröder (see fig. 155), from Messrs. SANDER & SONS.—A most beautiful flower, said to have been raised from seeds of inter-crossed *M. vexillaria*, to which it closely adheres, although in its large size and bold outline it resembles *M. Bleuana*. The flowers are of a delicate pink, but are white towards the margin and have a claret-crimson mask at the base of the lip.

Cattleya Lawrenceana Mary Regina, from Messrs. CHARLESWORTH & Co.—A unique specimen and the first albino of this species yet to appear or even be reported by collectors. The flowers are pure white, with a very faint blush-pink shade on the front of the lip.

Sobralia Charlesworthii, from Messrs. CHARLESWORTH & Co.—A very fine *Sobralia* of the racemose section, with deep rose-coloured sepals and petals and a broad band of purple round the lip, which has a yellow crest. It may prove to be a fine form of *S. Ruckeri*, illustrated in the *Gardeners' Chronicle*, July 27, 1901, p. 67.

Odontioda King George V. (*Odontioda Vuylstekei* \times *Odontoglossum lineatum*).—This gem is the production of Mons. CHAS. VUYLSTEKE, of Loochristy, Ghent. Its flowers are much larger than other *Odontiodas* and of fine shape. The marginal parts are soft rose, the inner parts closely marked with red, some lighter lines showing between. The front of the lip is cream-white tinged with rose.

Odontoglossum crinum Empress of India (*crispum* \times *ardentissimum*), from Mons. CHAS. VUYLSTEKE.—A very handsome hybrid, nearly covered with deep claret-coloured blotches, the white-ground colour only showing at the margins and small intervening spaces.

Cattleya Mendelii Princess Victoria, from Messrs. MANSELL & HATCHER, Rawdon, Yorks.



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FIG. 153.—ODONTOGLOSSUM "MEMORIA KING EDWARD VII." (REDUCED).

(Received a First-class Certificate.)

shaw's variety, very dark in colour; *Cœlogyne Rossiana*, *Dendrobium velutinum*, *D. revolutum*, a batch of *Cypripedium Godefroyæ leucochilum*, and *Disa grandiflora*.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a small group of good things, in the centre being a grand specimen of *Cattleya Skinneri alba*, and around this various *Odon-*

well shown up by the broad white margin. In a cave-like recess was a group of the mauve-tinted *Odontioda chelseiensis* and scarlet *Cochliodas* and *Odontiodas*. The forms of *Cattleya Mendelii*, including *Diadem* and *Empress*, were good; so also were the varieties of *C. Mossiæ*, arranged with *Odontoglossum Pescatorei*, *Lælio-Cattleya General Baden-Powell*, &c.

—A charming flower, unique in tint. Its flowers open pure white, but later attain a slight rose shade with a narrow lilac band inside the broad, crimped margin of the lip.

AWARDS OF MERIT.

Cattleya Mossiæ Magali Sander, from Messrs. SANDER & SONS.—A charming variety with pure-white sepals and petals and light, rose-coloured front to the lip.

Odontoglossum eximium Emperor, from Messrs. SANDER & SONS.—The flowers are large and the white is heavily blotched with purple.

Odontioda Royal Gem (Odontioda Vuylstekeæ × O. ardentissimum), from Mons. CHAS. VUYLSTEKE.—This may be likened to an enlarged *O. Vuylstekeæ*, with pale salmon-tinted ground colour beautifully marked with reddish rose colour.

miniature *L. fulvescens*. The flowers are white tinged with sepia-brown, and the lip is fringed.

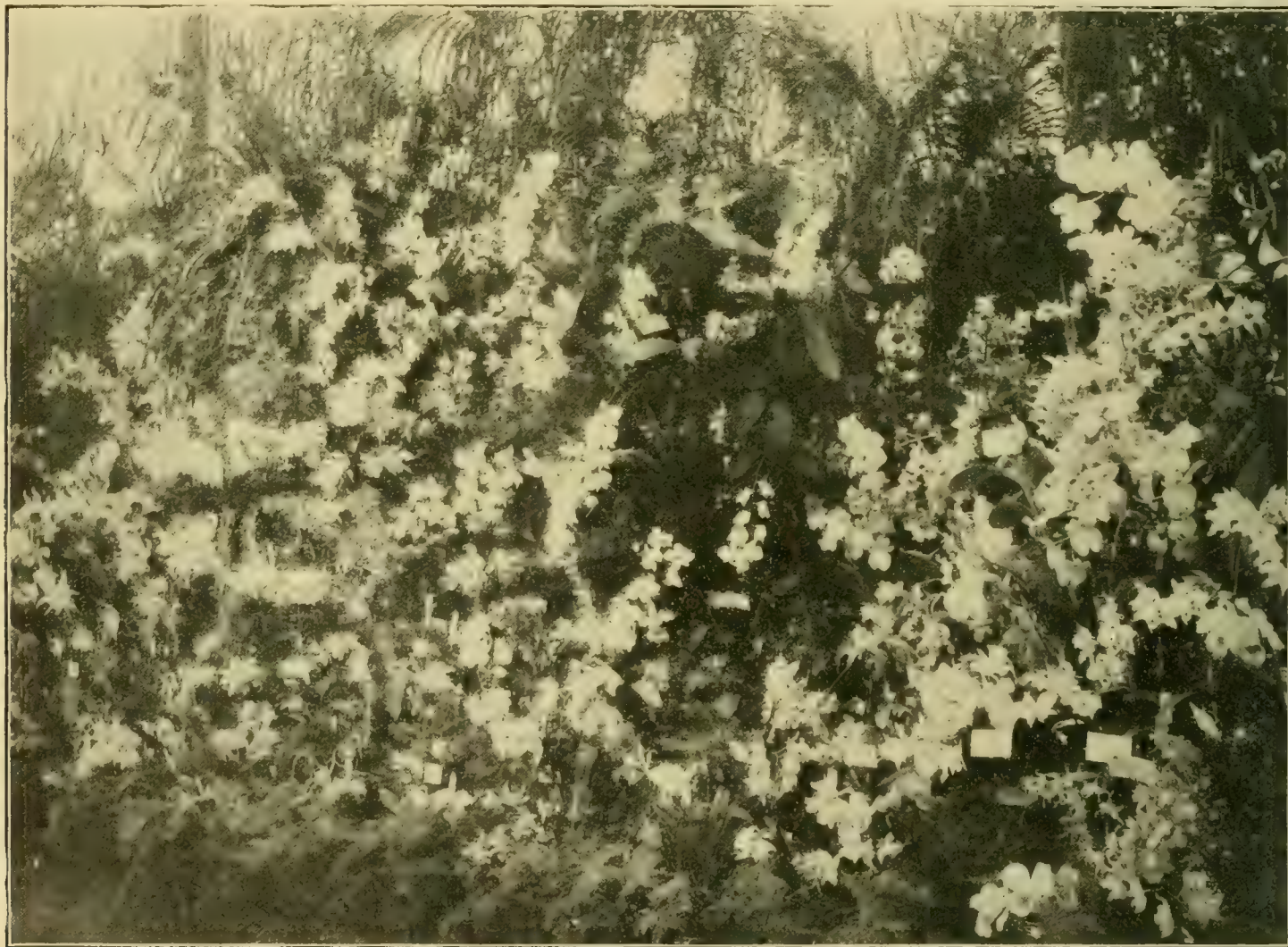
Bifrenaria bicornaria, from Messrs. SANDER & SONS.—This species belongs to the section of *B. aurantiaca*. The spikes are erect and 10 to 12-flowered. The flowers are orange-coloured, spotted with purple.

ROSES.

Messrs. PAUL & SON, Old Nurseries, Cheshunt, showed Roses in one of the corners of the marquee, the blooms being amongst the finest exhibited; pot plants of H.T. and other large-blooming kinds were especially choice, each specimen having many flowers of high quality. A selection includes Paula, a yellow Tea, shown as a standard, Mme. Segond-Weber, Geo. C. Waud, Mildred Grant, Harum, Jenny Gillemot, blush white, and Chateau de Clos Vougeot, one of the

Messrs. WM. PAUL & SON, Waltham Cross, Hertfordshire, made a magnificent show with Roses, the exhibit being of very large dimensions. Along the back was a row of tall pillar Roses, and others of this type were interspersed in the general group, dwarf plants in pots being utilised as a groundwork. Among the more showy of the climbers we may instance Coquina, Delight, Lady Gay, Crimson Rambler, white Dorothy Perkins, Stella, and American Pillar. The large-blooming H.T. and H.T. varieties were very choice, such beautiful kinds as white Maman Cochet, Lyon Rose, Mme. Jules Gravereaux, Mme. Melanie Soupert, Cynthia, and Farben Königin being very fine. Orleans Rose is an attractive dwarf Polyantha variety.

A large bank of Roses was shown by Messrs. H. CANNELL & SONS, Swanley, Kent. The majority were of the variety American Pillar,



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FIG. 154.—MESSRS. F. SANDER AND SONS' EXHIBIT OF ORCHIDS.

Odontoglossum Promereus (crispum × eximium), from Mons. CHAS. VUYLSTEKE.—The flowers are heavily blotched with purple and resemble a fine blotched *O. crispum*.

Cattleya Mendelii Queen Maud, from Messrs. CHARLESWORTH & Co.—A charming white form with light magenta front to the lip.

Laelio-Cattleya Aphrodite var. Mark Ham-bourg, from J. TALBOT CLIFTON, Esq. (gr. Mr. Float).—A superb variety with large flowers, the sepals and petals are white, and the lip a glowing crimson.

Laelio-Cattleya luminosa magnifica, from his Grace the Duke of MARLBOROUGH (gr. Mr. Hunter).—A richly-coloured flower, the sepals and petals being deep orange, tinged with purple; the lip is claret-purple.

BOTANICAL CERTIFICATE.

Lycaste peruviana, from Messrs. SANDER & SONS.—A remarkable species, resembling a

darkest and most fragrant Roses. There were also pillar Roses, densely flowering; a row of these formed a suitable background. The weeping standards were especially pretty.

Mr. CHAS. TURNER, Royal Nurseries, Slough, showed, in the largest tent, an exhibit of Roses. The outstanding feature was a trained plant of Hiawatha, about 10 feet in circumference, the plant being covered with the bunches of red blossoms. There were also large specimens of Lady Gay, and another of Dorothy Perkins, one on either corner. The main portion of the exhibit was filled with pot Roses, many being standards. Queen of Spain was shown well as a standard. We also noticed good examples of Frau Karl Druschki, Maman Cochet, Hugh Dickson, Florence Pemberton, Niphotos, Antoine Rivoire, Alice Lindsell, and Lady Ashtown. These were all shown splendidly, the background being formed of pillar varieties, interspersed with Palms.

which attracted such attention last year, but the clusters were not so large on this occasion. Other varieties were Blush Rambler, White Baby Rambler, a dwarf kind, Maman Levavasseur, also a dwarf kind, very free in flowering, white Dorothy Perkins, Hiawatha, Minnehaha, and other popular kinds.

Messrs. GEO. MOUNT & SONS, Canterbury, showed Rose blooms in large batches, the centre display of white Frau Karl Druschki being magnificent. Mrs. John Laing was also shown in superb form, there being dozens of this grand variety in a batch. The new variety, Lady Hillingdon, attracted much notice, and others that contributed to this fine display were Ulrich Brunner, Liberty and Richmond. At the back were arching plants of Crimson Rambler.

Messrs. HOBBIES, LTD., Dereham Nurseries, Norfolk, furnished the extreme end of the longest tent with a good display, the exhibit being rather too cramped to show to the best

effect, but, nevertheless, the exhibit was very imposing. The feature of the display were numerous pillar Roses, all profusely flowered and of large size. Chief of these were American Pillar, a charming single Rose, with pink and white flowers hanging in dense clusters; Lady Gay, Minnehaha, Dorothy Perkins, Seagull, a white variety; Apple Blossom, very pretty; Annie Müller, and Veilchenblau. There were also a number of Dwarf Polyantha Roses, of which the new Orleans variety, with dense heads of rose-coloured blooms, deserves mention.

Messrs. BEN. R. CANT & SONS, Colchester, showed a large group of Rambler Roses, the shoots of Lady Gay being cascades of blooms; very fine also were Mrs. F. W. Flight; The Garland, a pretty white Rose blooming in clusters; Hiawatha, a single crimson kind; White Dorothy Perkins, Veilchenblau, Minnehaha, Lyon Rambler and Goldfinch. There was a box of

tent. Pillar varieties and H.T. and T. kinds were worked together in a pleasing group, Lady Gay, Dorothy Perkins, Blush Rambler, and others of the tall kinds being mixed with such varieties as Auguste Comte, Lyon Rose, Mrs. David Jardine, Souvenir de Pierre Notting, and other well-known sorts.

CARNATIONS.

Messrs. W. CUTBUSH & SON, Highgate, London, N., had one of the most attractive floral displays in their group of Carnations, set in a ground of dwarf Polyantha Roses and backed with Rambler Roses. The group formed a pretty picture in flowers. At intervals arose mounds of Carnations, lightly disposed, and with a drooping Palm as centrepiece, the varieties of Carnations being selected for harmony of colours. *Coleus Cordelia* was as bright as the flowering plants: a touch of blue was provided in tall speci-

Messrs. YOUNG & Co., Hatherley, Cheltenham, had a good exhibit of Carnations, showing, amongst others, White Perfection, Mikado, in association with Yellow Queen; Winsor, Britannia, White Lawson, and Mrs. T. W. Lawson.

Mr. W. H. LANCASHIRE, Guernsey, arranged a display of Carnations, of big, bold blooms, the new Carola being grand; also a stand of Marmion in the centre of the group, with White Perfection, Beacon, and Rose Doré near by equally attractive.

Messrs. STUART LOW & Co., Enfield, made an imposing display with Carnations, arranged with fine taste, and representing all the choicer varieties in commerce. They showed many promising seedlings, of which we remarked Princess Juliana, a new perpetual-blooming hybrid of the "Malmaison" type, the flowers being orange-red. Roseate Dawn is also new, the colour being soft pink. Rival is of deep salmon tone. Royal



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FIG. 155.—MILTONIA "MEMORIA BARON SCHRODER."
(Awarded a First-class Certificate.)

Claudius, a fine H.T. variety of glowing rose shade. Another Rose of much merit was a seedling from the Himalayan Briar, with bluish-tinted flowers.

Messrs. F. CANT & Co., Colchester, arranged a beautiful display, principally of the Rambler varieties, the larger blooms being in boxes along the front, with several H.T. and other showy kinds as pot plants. Minnehaha was exquisite, the large trusses of blooms quite smothering the foliage; very fine also were Lady Gay, Trier, white; White Dorothy Perkins, with heads of bloom; Paradise, a single kind blooming in dense trusses; Austrian Copper, very effective; Irish Elegance, and, in boxes, Lyon Rose, J. B. Clark, Rhea Reid, Laurent Carle, Lady Roberts, and other well-known varieties.

Mr. GEORGE PRINCE, Longworth, Berkshire, made a pretty display with Roses in the largest

mens of *Anchusa Sappho*, and other prominent features were pillar plants of Roses *Veilchenblau* and *American Pillar*.

E. J. JOHNSTONE, Esq., Burrs Wood, Groombridge, Kent (gr. Mr. A. T. Paskett), showed an attractive group of Carnations, mostly as pot plants, but with sheaves of blooms in epergnes. The exhibit attracted our notice especially by reason of the natural manner in which it was shown.

Mr. W. H. PAGE, Tangle Nursery, Hampton, Middlesex, set up a grand group of Carnations, relieved with large sheaves of *Lilium longifolium* blooms and rambler Roses.

Mr. G. LANGE, Hampton, Middlesex, was also the exhibitor of a choice group of Carnations of well-known varieties. He showed the scarlet Beacon in splendid form, also choice examples of Mrs. H. Burnett, Harlowarden, and Winsor.

Purple blended well with White Perfection. Black Chief is amongst the darkest-flowered varieties. A pretty feature was made with hanging baskets filled with the scarlet-flowered Britannia.

Mr. H. MORTIMER, Rowledge, Farnham, Surrey, showed a representative collection of Carnations, with vases of a clove-scented Stock.

Carnations were also well shown by Mr. B. BELL, Castel Nursery, Guernsey; Mr. A. F. DUTTON, Iver, Buckinghamshire; Mr. H. BURNETT, Guernsey; and Mr. C. ENGLEMAN.

GROUPS OF PLANTS.

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, staged a magnificent group of stove plants, principally of ornamental-leaved species. The colours in the various subjects were splendidly developed, and the culture shown

in the plants was of the highest merit. Very large examples of *Caladiums*, *Dracæna Victoria* and *Dieffenbachia Fournieri* formed the back row. In the body of the group were superb specimens of *Alocasia Sandersoniana*, *A. Watsoniana*, *Gleichenia dicarpa*, *Dracæna liniata atro-purpurea*, *Anthurium Andreanum* in variety, *Tillandsia Massangeana*, *Medinilla magnifica*, *Croton B. Comte*, *Maranta Veitchii* (very handsome), *Dieffenbachia Jenmanii*, and other equally handsome species, with a number of Orchids to brighten the effect.

Mr. L. R. RUSSELL, Richmond, showed a group of choice ornamental-leaved plants, chiefly stove subjects. In the centre was a grand example of *Cyanophyllum magnificum*, with leaves of deep olive-green above and crimson beneath. Equally fine were *Anthurium Veitchii* and *A. crystallinum*. *Maranta insignis* was also shown splendidly, and other plants of note were *Alocasia Watsoniana*, *Heliconia illustris rubricaulis*, *Dracæna Bruantii variegata*, *Phyllanthus*

Mr. A. LL. GWILLIM, Cambria Nursery, New Eltham, also staged a showy group of tuberous-rooted *Begonias*. *Sea-shell* has the tips of the petals bordered with pink and delightfully crimped. *Alice Flood* is a blush variety of much beauty. Others of merit are Mrs. J. C. Gwillim (reddish-salmon), Miss Muriel Edwardson (salmon-rose), and Sultan (salmon-scarlet). There were many beautiful unnamed seedlings.

Messrs. THOS. S. WARE, LTD., Feltham, Middlesex, exhibited the largest group, and the quality was excellent throughout. The plants represented most of the types, including double and single-flowered, crested and frilled kinds. Most were named sorts, a selection being Mrs. Ernest James (pale salmon), Mrs. F. C. Stoop (blush with creamy-yellow ground), Duchess of Connaught, Hon. Mrs. Roland Greville (white), Lady Cromer (one of the largest flowered, the colour is pink tipped with white), Miss Greaves-Banning (rosy-cerise), Mrs. John Brimsmead (white), Mrs. August P

Waterer with pale-yellow blooms. The smaller *Azalea rustica* varieties were extremely pretty, the white *Mecene* being especially good. A new variety of much merit was seen in *occidentalis delicatissima*, the white flowers being blended with orange.

Messrs. J. WATERER & SONS, Bagshot, Surrey, made a fine show with *Rhododendrons*, a group of the beautiful Pink Pearl dwarfing by comparison all others. But there were many other sterling kinds, such as *Lady Hillingdon*, a variety having large trusses of blush blooms with yellow upper petal; John Waterer, with fine, red trusses; Marquis of Waterford, dark rose, shown as a standard; Mrs. William Agnew, rose tipped with a deeper tint; Doncaster, deep red; and Cynthia.

Messrs. JAS. VEITCH & SONS also made a feature with Pink Pearl *Rhododendrons*, which were arranged in a hollow with other shrubs around. Two magnificent plants of the *Rhododendron* attracted notice, being used as



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FIG. 156.—A GROUP OF CINERARIAS IN MESSRS. SUTTON AND SONS' EXHIBIT.

nivosus, and *Dracæna Victoria*. There were also many handsome *Codiaeums* (*Crotons*), *Nertera depressa* in fruit, and *Ficus radicans majus variegatus*. In another part of the show Mr. RUSSELL displayed varieties of *Bertolonia*.

BEGONIAS.

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, showed an imposing group of tuberous-rooted *Begonias*. Baskets suspended from iron arches contained drooping kinds, such as *Carminea* Mrs. Bilkey (orange), *Gladys* (red), and *Fleur de Chrysanthe* (salmon). The large-flowered kinds were magnificently bloomed, with delicate and refined colours of rose, salmon, yellow, pink, carmine and other tones. A selection of the finer sorts includes Mrs. W. L. Ainslie (yellow), *Grace Audrey* (salmon-pink), *Mme. Tetragon* (deep salmon), *Pink Pearl*, Rt. Hon. Joseph Chamberlain (crimson), *Lady Marjory* (orange-red), *Nellie Nicholson* (a fine plant with six extra large blooms), *Rose Queen*, and *Empress Marie* (white).

Brandt (white blush), Mrs. Andrew Tweedie (white), and Miss Vance (pale salmon).

A group of *Begonia Marie Bouchet* in hanging baskets and pans was shown by the Hon. Mrs. GLYN, Albury Hall, Herts. (gr. Mr. J. Friend). The plants were excellent specimens, very freely flowered, and would have shown to greater advantage if the supports had been less obtrusive.

RHODODENDRONS AND AZALEAS.

These beautiful flowering shrubs were shown in fine condition. Messrs. R. & G. CUTHBERT surpassed all their previous efforts in their grand exhibit of *Azaleas*, which had as a centre-piece the new *Florodora* variety of salmon-orange shade. There was also a great mass of yellow blooms from a number of grouped plants of *Anthony Koster* variety, one of the gems of the race. Some plants on tall stems served to break up the continuity of the surface, and of these none was finer than *Consul Ceresole*, of soft-pink shade. A fine red variety was seen in *J. C. Van Tol*, and we may mention also *Nancy*

foils, one at either end. There was seen the new *R. Souliei*, which has great promise as a garden subject. The centre of the exhibit was a bank of well-flowered *Wistarias*, and grouped about were *Vitis Henryana*, *Cytisus Dallimorei*, *Philadelphus Lemoinei rosace*, *Olearia stellulata*, *Andromeda speciosa cassinefolia*, with *Azaleas* in assortment.

The KING'S ACRE NURSERY Co., Hereford, showed pyramidal-trained plants of *Indian Azaleas*, and varieties of *Heliotropes*. The *Azaleas* were good specimens, a plant of the white-flowered *Madeleine* being especially fine.

MISCELLANEOUS INDOOR PLANTS.

Messrs. SUTTON & SONS, Reading, exhibited a bank of flowers at one end of the large marquee. They arranged a group of star *Cinerarias* in the centre, with a belt of the new Reading Gem strain, which has larger flowers than the star varieties and exhibits very beautiful colours. On either side of this central bank were groups of *Calceolarias*, a dividing line of *Begonias* and fine

pot plants of *Clarkia pulchella*. Then, separating these from a final group of *Schizanthus*, was another band of *Begonias* and *Clarkia* of the variety *Firefly*, with beautiful rosy-cerise flowers. There were also many grand plants of tuberous *Begonias*, a batch of *Gloxinias*, *Begonia Lloydii*, *Nicotiana hybrida*, and a band of *Nemesia strumosa* of the compact-habited type, the whole forming a group of the greatest excellence.

Messrs. JAMES CARTER & Co., High Holborn, London, staged an unusually attractive exhibit of flowering plants. They made a large bank of showy *Cinerarias* with a varied selection of colours, the display overflowing some distance in a narrower band, and facing a table on which was staged a collection of plants in flower. They had *Gloxinias* of splendid quality, all the plants being well-flowered; with these were *Begonias* of the tuberous-rooted type, the delicate tints of the flowers being very impressive. Their hybrid *Streptocarpuses* were very finely in bloom, as also were *Schizanthuses* and *Carnations*. Facing the table exhibit was a batch of a choice and large-flowered white *Petunia* labelled *Queen Mary*. Messrs. CARTER also showed a considerable number of dwarf trees in fancy receptacles, and, just outside the tent, a representation of a Japanese garden (see fig. 158), which was made to present an appearance of realism, not always obtained in temporary exhibits of this nature.

Messrs. STUART LOW & Co., Bush Hill Park Nursery, Enfield, staged an assortment of greenhouse-flowering plants, giving prominence to a large batch of finely-flowered plants of *Metrosideros floribunda*. A pretty, small-flowered white *Azalea* was also pleasing, and other subjects were white and blue-flowered *Hydrangeas*, the upright-growing *Boronia polygalifolia* with pale-rose blooms, *Pimelia mirabilis*, *Gerberas* in various colours, *Embothrium coccineum* (very finely in flower), *Coreopsis Grantii*, and *Lotus peliorhynchus*, used as a draping in front.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, had a choice assortment of exotic flowering plants suitable for greenhouse and conservatory decoration. The blending of the various subjects was done with much skill and taste. There was a bold group of *Senecio auriculatissima* dominated by large plants of *Cineraria Feltham Beauty* and edged with the white *Cineraria Snowball*. Another pretty combination was the blue *Exacum macranthum* and *Calceolaria Buttercup*, this latter a cross from *C. Clibranii*. There were also batches of *Streptocarpus* of the *achimeniflora* type in rose, white and heliotrope colours. *Gloxinias* were well represented, conspicuous varieties being *Leda*, with upright, purple flowers; *Snow Queen* and *Acis*, reddish-scarlet. A selection of *M. Adnet's Gerberas*, tall plants of *Fuchsias*, *Notonia Grantii*, and *Aristolochia Sturtevantii* were also noticed.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed the flesh-coloured *Phyllocactus German Empress*, excellent little plants beautifully in bloom; a number of *Regal Pelargoniums*, a batch of *Pilocerus senilis*, the *Old Man Cactus*. *Carnations* in variety; an imposing group of *Calceolaria Clibranii*, and a new *Verbena* labelled *Cannell's Pink*. As an edging a number of showy blooms of *Phyllocactuses* were arranged in a band of *Adiantum Ferns*.

Messrs. ROBERT P. KER & SONS, Liverpool, showed nearly 100 plants of *Hippeastrum* (*Amaryllis*). Although so late in the season, the plants were in fine condition, notable varieties being *Comet* (white with rose markings), *The Queen* (white striped with red), *Pink Gem*, *Cynthia* (rose with white stripes), *alba punctata*, *Prosephone* (a grand plant with four large red and white flowers), *Firebrand* and *Cerise Gem*.

Messrs. WM. BULL & SONS, King's Road, Chelsea, showed a floor group of *Hippeastrums* (*Amaryllis*) in the marquee, the plants being set off with *Alocacias*, *Aralias*, *Dracenas*, *Caladiums* and other handsome foliage plants finished by a row of *Bertolonias* and *Eugenia myriophyllum* as edging. Notable varieties of *Hippeastrums* were *Beryl* (orange red), *Comet*, *Oriflamme* (scarlet), *Sunbeam* (pink and white), *Queen Mary* (white, faint blush), *King George V.* (a fine, big, scarlet flower), and *Norah* (rose-red).

Messrs. JOHN PEED & SON, West Norwood,

London, set up an exhibit of *Gloxinias* and *Streptocarpuses* with *Palms*, *Ferns* and trails of *Asparagus plumosus* for relief. The *Gloxinias* represented a good strain, many being choice-named varieties such as *Countess of Carnarvon*, *Empress of India*, *Countess of Warwick*, and *Rudyard Kipling*, all being well known in gardens.

Some remarkably good *Calceolarias* of the large-flowered type were shown by WICKHAM NOAKES, Esq., Selsdon Park, Croydon.

Another excellent group of *Calceolarias* was shown by VIVIAN PHILLIPS, Esq., Crofton Court, Orpington (gr. Mr. T. Hobbs), the flowers having a good range of colours, and set off by healthy foliage.



THE TEMPLE SHOW.

FIG. 157.—WICHURAIANA ROSE "EXCELSA":
COLOUR OF FLOWERS ROSY-SCARLET.

(Received an Award of Merit.)

Messrs. WEBB & SONS, Stourbridge, showed herbaceous *Calceolarias*, with extra fine blooms, a bank of stellate-flowered *Cinerarias*, bordered with *Schizanthus*, equally good *Gloxinias*, and a repetition batch of *Calceolarias*, all of extra fine quality.

A variegated *Dracena*, named *Souvenir de François Buysse*, was shown by M. EMILE VERCAUTEREN, Melle, Ghent, Belgium.

Messrs. GODFREY & SONS, Exmouth, Devonshire, displayed varieties of *Regal* and large-

flowering *Pelargoniums*, many of the varieties being new, with up-to-date names, amongst which *King George* and *Queen Mary* were conspicuous on especially fine stores.

Messrs. W. H. ROGERS & SON, LTD., Red Lodge Nursery, Southampton, showed their hybrid *Pelargonium* James T. Hamilton.

Messrs. G. T. VAN WAVERIN & KRUIJFF, Sassenheim, Holland, displayed a batch of plants of the pink *Astilbes* (*Spiræas*) *Queen Alexandra* and *Peach Blossom*.

Messrs. WM. BULL & SONS, King's Road, Chelsea, exhibited small plants of *Hydrangea*, with very large inflorescences, in blue, as well as the ordinary creamy-white colours.

A splendid strain of hybrid *Streptocarpuses* was shown by the Hon. VICARY GIBBS, Aldenham, Elstree (gr. Mr. Ed. Beckett). Some of the blooms were amongst the largest we have observed in this plant, and the colours showed a great advance on those of earlier raising.

Mr. GEORGE GILBERT, Queen's Road, Hastings, showed varieties of *Zonal Pelargoniums* and *Marguerite White Perfection*.

Messrs. H. B. MAY & SONS, Edmonton, showed varieties of *Zonal Pelargoniums* with a background of *Clematis* plants in flower.

Mr. A. BRUCE, Chorlton-cum-Hardy, Manchester, staged nearly 20 species and varieties of *Sarracenia*. The largest pitchers were those of *S. flava gigantea*, but the prettiest marked were those of *S. Drummondii*.

Large, trained plants of *Clematis* were shown by Messrs. G. JACKMAN & SON, Woking.

CALADIUMS.

Messrs. JAS. VEITCH & SONS, LTD., Royal Exotic Nurseries, King's Road, Chelsea, showed some excellent specimens of these beautiful-leaved stove plants in their mixed group. The foliage exhibited almost every tint of colour from white to deep red. Some of the best were *Caladium Sir Julian Goldsmid*, with very large foliage varying in tint according to age, the younger leaves being whitish, veined with red, the older leaves suffused with pink; *The Mikado*, dark red in the centre shaded with maroon and with a broad, grass-green margin; *Sir Henry Irving*, of a delicate transparent white with pink veining and green margin; *Rose Laing*, large cream-white suffused with rose and having pale green veining at the margin; *Mme. E. Pynaert*, white, flushed with red and with a yellowish-green margin; *Guill Mar*, of a beautiful, delicate rose tint with a tracery of cream-white and freckling of emerald-green; *R. Hoffmann*, with centre of pale rose passing to white with a broad, irregular, marginal green band; *Mme. John Box*, of large size, with pink centre having a red veining, the margin being white and green; *May Archer*, cream-white with greenish veining on the outer part, the main veining being ivory-white bordered with rose; *Noakesii*, white, with deep claret veining, shading to rose towards the greenish margin; *W. Rappard*, rosy-red, veined with purple and margined with green; *President de la Devansaye*, a dwarf red variety; *Ronca d'Or*, white, suffused with rose and with green veining; *Golden Queen*, still one of the best of the pale yellow kinds; *Baron Adolphe de Rothschild*, *Pantia Ralli*, *Miss Elsie Hoffmann*, and *Silver Cloud*.

Messrs. JOHN PEED & SON, West Norwood, London, had a choice group of *Caladiums*, the plants having finely-coloured leaves, rather better tinted than usual. Some of the largest were *John Peed*, green and crimson; *Candidum*, silver and green; *Mrs. J. R. Box*, rose and green; *Mme. Mitjana*, a magnificent red-coloured leaf, shown a trace only of green; *Roncador*, rose with green veins; *Marquis of Camden*, a very big leaf with red veins, and greenish ground; *Racine*, red veining on creamy ground; *Triomphe de Comte*, one of the oldest and best, the rich crimson leaf being bordered with green.

FERNS.

Messrs. H. B. MAY & SONS and Messrs. J. HILL & SONS were the principal exhibitors of *Ferns*, but there were smaller collections contributed from various sources.

Messrs. T. ROCHFORD & SONS put up a group in which *Cyrtomium Rochfordii*, a very fine plumose form of *C. falcatum*, was well shown. *Nephrolepis lycopodioides*, another of the

plumose section of compact habit, and *Polypodium sporadicarpum cristatum* and *P. glaucum crispum* were also good decorative Ferns.

Mr. H. N. ELLISON, West Bromwich, made a good exhibit of Ferns, the plumose *Nephrolepis* being prominent, also many of the best *Aspleniums*, with a variety of other choice plants.

Messrs. HILL & SON, Lower Edmonton, had an imposing group of choice species and varieties of Ferns, the exhibit being remarkable for the brightly-tinted varieties it contained; these included *Adiantum Veitchianum*, *A. Henslowianum*, *Lomaria L'Herminiera*, and many *Gymnogrammas*. *Platycerium*s were prominent, also the best sorts of *Davallia* and *Nephrolepis*. It was noticeable that no ordinary market sorts were included in this large group.

Messrs. H. B. MAY & SONS, Edmonton, made a splendid exhibit of Ferns in one of the large tents, in addition to a group of hardy Ferns

HARDY HERBACEOUS AND ALPINE PLANTS.

Exhibits of these have never been more finely displayed; the water and rock-garden exhibits arranged in the open were excellent and very educative.

Messrs. R. WALLACE & Co., Colchester, had an imposing display, in which *Liliums*, such as *L. Hansonii*, *L. dalmaticum*, *L. excelsum*, *L. venustum*, *L. macranthum*, and others were very fine. Masses of Spanish *Iris*es, *Tulips*, early *Gladioli*, *Iris*es of the Cushion and *Korolkowii* groups, *Ixias*, and many other garden plants were well shown, the effect of the whole display being particularly good.

Messrs. BACKHOUSE & SONS, York, had an exceptionally good exhibit of a miniature rockery, with the various plants displayed in excellent taste. We noticed the lovely and rare *Primula Reidii*, *Gentiana verna*, *G. bavarica*, *G. acaulis*, and *G. a. alba*; also a lovely lot of *Orchis*

choice things as *Campanula muralis*, *Saxifraga Macnabiana*, *Primula sikkimensis*, *P. japonica*, *Saxifraga aizoon rosea*, Alpine *Phlox*es, and *Aubrietias* in variety.

Mr. B. LADHAMS, Shirley, Southampton, had a showy group, in which *Primula sikkimensis*, *Meconopsis cambrica* fl. pl., *Aquilegia Stuartii* Mather's variety, and *Primula Cockburniana* were arranged in bold masses with striking effect. Some perpetual-flowering *Pinks* and *Verbascum densiflorum* were also noted.

THE GUILDFORD HARDY PLANT NURSERY displayed many good plants in a somewhat extensive group, the rose-coloured variety of *Polygonum sphærostachyum*, *Tiarella cordifolia* *superba*, *Aster peregrinus* (a fine plant with blue-coloured flower-heads about 3 inches across), *Anthyllis montana* with reddish spikes, *Saxifraga aizoon rosea*, and *S. Macnabiana* being among the most notable plants.



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FIG. 158.—JAPANESE GARDEN EXHIBITED BY MESSRS. JAMES CARTER AND CO.

staged in the open. The group under canvas included large specimens of *Davallia solida superba*, *D. fijiensis* in several fine varieties, *Cibotium sabeidei*, *Platycerium Alcorni*, *P. Aethiopicum*, *Polypodium Mayi*, *Polypodium Knightae*, *P. sepultum*, *Nephrolepis* in choice new varieties, *N. Marshallii* being very attractive; *Lomaria discolor*, and *L. attenuata*.

In the group of hardy Ferns *Scolopendrium*s were a great feature, the varieties specially worthy of note included *corymbiferum ramo-cristatum*, *ramo-digitatum*, *crispum grande*, and *congregatum*. *Osmundas* included *O. Regale*, *O. palustris*, and *O. japonica*. Some fine varieties of *Polypodium*s, *Lastrea filix-mas*, *Athyrium filix-femina*, and *Polystichum*s were noticed in the group.

foliosa, pretty colonies of *Saxifragas* and *Ramondia pyrenaica*, with hardy *Cypripedium*s in groups at intervals.

Another fascinating exhibit of a similar nature was shown by Mr. REGINALD FARRER, the Craven Nurseries, Lancaster. *Ramondias*, *Androsaces*, *Anemone alpina*, *Primula farinosa* in hundreds, *Dianthus Freynii*, *Viola pedata*, the ever-beautiful *Daphne rupestris*, and *Saxifraga aizoon rosea* were among the choicer plants exhibited.

Messrs. G. & A. CLARK, LTD., Dover, had a splendid lot of hybrid *Trollius*es, with *Phlox canadensis* in variety, and *Eremuri* in bold spikes.

THE KING'S ACRE NURSERIES, Hereford, had a very effective group of plants, including such

Mr. W. J. GODFREY, Exmouth, Devon, brought a very fine lot of hybrid Oriental *Poppies*, in shades of terra-cotta and brownish-red.

Mr. G. REUTHE, Keston, Kent, staged a group of choice Alpines and rare *Rhododendrons* of much interest and beauty. *Haberlia Frederici* *Coburgii*, *H. virginica alba*, *Daphne Collina*, and the very beautiful *Lewisia cotyledon*.

Messrs. WHITELEGG & PAGE, Chislehurst, had groups of Sweet Peas, *Tulips*, and a variety of showy Alpines arranged in masses.

Messrs. BARR & SONS, Covent Garden, London, brought a splendid collection of Darwin and May-flowering *Tulips*, Spanish *Iris*es, early *Gladioli*, and a delightful collection of choice Alpines. Many *Lilies* were also noted, and

many beautiful Irises. *Iris cristata* is especially good. *Anemone sulphurea* and *Rodgersia tabularis* were also remarked in this group.

Messrs. STORRIE & STORRIE, Glencarse, Perthshire, had a showy group of *Auriculars* and *Polyanthuses* representing particularly fine strains, the plants being free and bold in their flowering.

Messrs. G. MALLETT & Co., Cheddar, had a somewhat extensive rockwork exhibit, arranged for the most part with masses of *Lithospermum*, *Primulas* of many species, *Wahlenbergias*, *Incarvillea grandiflora*, *Gerberas*, *Iris Susiana*, *Poppies*, *Tulips*, and other flowers in season.

From Gashill, King's Co., Ireland, Messrs. REAMSBOTTOM brought a fine lot of *St. Brigid Anemones*.

Mr. R. C. NOTCUTT, Woodbridge, showed masses of *Kalmias*, *Trollius*, and *Tree Pæonies* in the cut state, also *Primula Cockburniana* and other plants.

Messrs. JACKMAN & SONS, Woking, had a showy group of herbaceous plants, including *Globe flowers*, *Incarvilleas*, *Pyrethrums* and *Irises*, with a choice assortment of *Alpines*.

Mr. M. PRICHARD, Christchurch, Hants., had a collection of some eight or ten varieties of *Scillas*, making an exceptionally good display. He also showed *Irises*, *Pæonies*, *Pyrethrums*, *Trolliuses*, *Eremuri*, and *Lupinus* in batches.

Mr. H. HEMSLEY, Crawley, Sussex, had a particularly good and extensive rockery, planted well and tastefully. Among prominent plants we noted *Erodium pelargonifolium*, *Geranium sessiliflorum*, *Daphne Cneorum* (very fine), *Viola pedata rosea*, *V. cucullata grandiflora*, *Thylliums*, *Primula farinosa*, *Edraianthus serpyllifolius*, and *Ramondias*. A group of *Sarracénias* formed a colony apart from the rockery.

Mr. AMOS PERRY, Hardy Plant Farm, Enfield, had a magnificent display of *Tree Pæonies*, the plants being in superb condition and commanding much notice. In addition to these were huge masses of hybrid *Globe flowers*, *Eremuri*, *Tulips*, and other bulbous plants. Hybrids and cross-bred *Irises* of the *Korolkowii* and allied sections were especially fascinating. In the corridor at the end of the tent Mr. PERRY had a magnificent display of *Lithospermum Heavenly Blue*, several yards of a rockery bank presenting a sheet of the loveliest blue colour. This plant is quite distinct from *L. prostratum*.

Messrs. T. S. WARE, LTD., Feltham, had a rockery bank freely planted with *Saxifraga aizoon rosea*, *S. granulata fl. pl.*, *Phlox Vivid*, *P. Sprite*, *Cypripedium acaule*, and other *Alpine plants*.

Messrs. G. BUNYARD & Co., Maidstone, had a very extensive arrangement of cut blooms of herbaceous subjects, such as *Irises*, *Liliums*, and *Eremuri*, *Phlox Laphamii*, *Dianthus Napoleon III.* Many *Saxifragas* and other *Alpine plants* were arranged in colonies. One such was formed of *Primulas*, *P. sikkimensis*, *P. Cockburniana*, *P. X Unique*, and *P. Reggiana*. The exhibit also included many *Tree Pæonies* and *Parrot* and *Bouton d'Or Tulips*.

Messrs. HOGG & ROBERTSON, Dublin, had a bright display of *Ixias*, *Tulips*, and *Irises*; while Messrs. GILBERT & SON, Bourne, Lincolnshire, had a superb lot of *Anemones*. From Messrs. DOBBIE & Co., Rothesay, came a delightful group of *Pansies* and *Violas*, arranged in miniature bouquets, sprays, and bunches, the effect being very good. Messrs. FELTON & SONS, Hanover Square, showed a collection of *Gerberas*. Messrs. J. COCKER & SONS, Aberdeen, had a showy lot of *Trolliuses*, with *Anemone alpina* and *A. sulphurea*. Messrs. BEES, LTD., Liverpool, had a most interesting collection of their recently introduced *Primulas*, including *P. Littoniana*, *P. Bulleyana*, *P. Beesiana*, and *P. Forrestii*. *P. Unique* and *P. sikkimensis* were also represented. *Anemone demissa*, with white flowers, is a distinct and good plant.

Mr. J. E. KNIGHT, Wolverhampton, had a large display of *Violas*. Messrs. TOOGOOD & SONS, Southampton, displayed a capital lot of *Stocks*. Mr. FRANK LILLEY, Guernsey, made a good display with *Ixias* and early *Gladioli*.

Pansies and *Violas* were well shown by Messrs. SEAGRAVE & Co., Sheffield, and *Trollius*, *Tulips*, and *Anemones* by Messrs. A. YOUNG & Co., Elgin.

Messrs. GUNN & SONS, Olton, Warwick, had a splendid bank of *Viola cornuta purpurea*; while the pale-flowered typical form and *V. c. alba* was

also shown in groups. Messrs. G. GIBSON & Co., Leeming Bar, Bedale, brought masses of *Trollius* and *Poppies*; Mr. A. J. HOWARD, Colchester, had a showy lot of *Irises* and *Primulas*; while Mr. W. ARTINDALE, Sheffield, had splendid exhibits of *Daphne Cneorum*, *Primula Veitchii*, *P. Sieboldii*, *Phlox Laphamii*, &c.

TULIPS AND SWEET PEAS.

Darwin and other *Tulips* shown by Sir G. FAUDELL PHILLIPS, Balls Park, Herts., were particularly fine. *Velvet King*, *Sultan*, *La Tulipe Noire*, *Zulu*, and *Raven's Wing* being all of dark shades, while *Cherry Ripe* was among the showiest of the highly-coloured forms.

Messrs. R. H. BATH, LTD., Wisbech, had a grand lot of these flowers, the May-flowering and Darwin varieties being the most prominent. This firm also showed good *Carnations*.

The exhibit of *Tulips* from Messrs. BARR, alluded to elsewhere, was one of the most complete.

Messrs. H. J. JONES, LTD., Lewisham, had a capital assortment of *Sweet Peas*, *Zonal Pelargoniums*, *Violas* and *Spiræas*, the whole making a fine display.

Messrs. ALEX. DICKSON & SONS, LTD., Newtownards and Belfast, had a superb lot of Darwin and other *Tulips*, *La Tulipe Noire* being the darkest of all. *Mrs. Moon* (yellow), *Prince of the Netherlands* (deepest rose), *Sultan* (nearly black), and *Scarlet Emperor* were noticed in this choice collection.

Messrs. SUTTON & SONS, Reading, had a magnificent lot of these flowers, *Fawn*, *Bouton d'Or*, *Queen of Brilliants*, *Orange King* and *Thorbeck* being among the finest varieties in a very representative exhibit.

Messrs. ROBERT SYDENHAM & Co., LTD., Birmingham, had a group of *Sweet Peas*, in which *Audrey Crier*, *Evelyn Hemus*, *Earl Spencer*, *St. George*, *Zephyr*, *Black Knight*, *Sunproof Crimson*, and *White Spencer* were seen to advantage.

Mr. HOWARD CRANE, Highgate, N., arranged a fine collection of *Violas* and *Violettas*, setting them in pans of wet sand to preserve their freshness.

EXHIBITS DISPLAYED OUT-OF-DOORS.

Messrs. PULHAM & SON, Newman Street, Oxford Street, London, arranged a rockery, planting it with *Alpine* and other plants.

Messrs. W. CUTBUSH & SONS, Highgate, exhibited numerous objects in the topiary art in *Box* and *Yew*; the more novel of these representing a sailing vessel. These exhibitors had thrown up a bank 12 feet high and planted it with flowering shrubs; at the foot was a pool with a margin of rocks, among which were planted *Osmundas*, *Funkias*, *Sarracénias*, *Richardias*, *Trollius*, *Gunneras*, *Spiræas*, and other water-loving plants. Other flowering plants included *Meconopsis cambrica*, *Primula japonica*, *Ranunculus aconitifolius fl. pl.*, *Incarvillea*, *Tulipa persica*, dwarf-growing *Phloxes*, *Calceolaria ventricosa*, *C. parviflora*, *C. macrantha*, and species of *Primula*. The group was set up with good taste.

Messrs. J. VEITCH & SONS, Royal Exotic Nursery, Chelsea, had a group of plants, chiefly in pots, arranged on the level turf. There were masses of *Schizanthus grandiflorus* hybrids—fine in colours; of *Anchusa italica* (*Dropmore* variety), of a lovely shade of blue; *Primula japonica* in several varieties, *P. pulverulenta*, *Calceolaria "Buttercup,"* tall and yellow-flowered; *Incarvillea Delavayi*, *Primula X Unique*, *Rehmannia*, *Meconopsis integrifolia*, *Viburnum Opulus*, *Wistarias*, *Ostrowskia magnifica*, hardy *Azaleas*, *Hydrangea arborescens alba grandiflora*, with large corymbs, and some standards of *Viburnum plicatum*, capitally flowered.

Messrs. PAUL & SON, The Old Nurseries, Chess-hunt, had a group formed in several oblongs, 30 feet and 3 feet deep, which contained flowering shrubs of species. We noted a fine *Azalea Helen Schiffer*, with white blooms, in moderate-sized corymbs; *A. George Cunningham*, white flowers, with dark spotting on the upper part of the flower; *Rhododendron Bennington*, of a rosy-purple colour, in big trusses; *R. H. M. Ardern*, with rosy-crimson flowers, and *R. Jeanne d'Arc*, of similar colouring.

Mr. L. R. RUSSELL, Richmond, Surrey, was the exhibitor of an oblong group, consisting of hardy shrubs of *Ivies*, species of *Vitis* from

China, nicely-flowered *Clematis*, Japanese *Maples*, hardy *Azaleas* and plants possessing variegated leaves—his specialities. Among *Clematis* we observed the varieties *Guiding Star*, single-flowered, and of a lovely blue colour; *Proteus*, semi-double blooms of lilac colour; *Fairy Queen*, of the same tint, but single-flowered, and the old *Countess of Lovelace*.

Messrs. JOHN WATERER & SONS, LTD., American Nurseries, Bagshot, Surrey, had a group similar in shape to the last, and made gay with *Rhododendrons Alice*, *Doncaster*, *Everestianum*, *Prometheus* and others. The exhibit included *Lilacs* in variety, *Ledum* and many Japanese *Maples*, which gave a pleasing change of colour to the group.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, showed a group consisting of *Acer palmatum* as standards, the *Concordia Oak*, *Ivies* with variegated leaves, *Rhododendrons Pink Pearl*, *Mrs. Stirling* and *Cynthia*—a fine crimson-coloured variety; *Weigela Eva Rathke*, very freely flowered; also *Clematis Ville de Lyon*, single-flowered, of a deep crimson colour. The exhibitors formed a rockery with *Kentish ragstone*, planting it with *Dwarf Alpines* and small shrubs. They showed likewise some of the newer varieties of *Lilacs*.

The Misses HOPKINS, The Mere Gardens, Shepperton-on-Thames, were also constructors of a rockery, planting it with suitable occupants.

Messrs. STUART LOW & Co., Bush Hill Park, Middlesex, exhibited a roseroy, formed tastefully with *Polyantha* varieties, in tall and dwarf-grown plants. These were arranged in a semi-circle, the dwarf plants forming the carpet beneath the standards, and in the middle of the semi-circle a narrow bed was similarly filled. The arrangement was novel and pleasing. This firm also showed many plants of *Metrosideros floribunda* finely bloomed, and measuring 3 to 4 feet in height and width.

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, exhibited a comprehensive group of hardy species and varieties of *Ferns*. With these a broad border was formed, which surrounded three sides of a square filled with flowering plants standing on the turf. These last consisted of *Lobelia Waverley Blue*, a variety that is destitute of the disturbing white "eye," the fine *Heliotrope Lord Roberts*, *Abutilon triumphans*, various tricolor and bicolor *Pelargoniums*, *Salvia Zurich*, some beautiful pink intermediate *Stocks*, with *Verbenas Princess of Wales* (deep blue) and *The King* (of a rosy-crimson tint), *Adonis* (scarlet), and *Queen of Whites*.

Messrs. BARR & SONS, King Street, Covent Garden, exhibited pigmy trees—*Acers*, *Quercus dentata*, *Prunus*, and *Conifers*.

Messrs. R. & G. CUTBERT, Southgate Nurseries, Southgate, Middlesex, showed a large group of late-flowering *Tulips*. These were arranged in groups of 12 potsful each. Amongst the showiest were *Salmon Queen* (rosy-purple), *Margaret*, *Psyche*, *Ruby* (dark crimson), *Mrs. F. Sander*, *Bacchus* (a Darwin variety), *Lucifer* (dull red), and *Tulipa Gesneriana major*.

Topiary objects were shown by Messrs. PIPER & SONS, Bayswater, W. They were of the usual kind in form and materials.

Mr. R. C. NOTCUTT, Woodbridge, Suffolk, showed a group of hardy, flowering shrubs, such as *Rhododendron hybridum*, *Azalea mollis*, *Kalmias*, *Cytisus*, *Viburnum macrocephalum*, *Philadelphus Bouquet Blanc*, and *Lilacs* in variety.

Messrs. R. WALLACE & Co., Colchester, built up a rockery about 24 feet square, decorating it lavishly with *Alpines*, dwarf *Conifers*, hardy *Ferns*, and other suitable rock-garden plants. A pool occupied the middle area, and the salient parts of the rockery were planted with *Saxifragas*, *Calceolarias*, *Phloxes*, *Trollius*, and many other hardy subjects.

Messrs. W. ARTINDALE & SON, Nether Green, Sheffield, displayed a bed of *Violas* of excellent quality, the better varieties being *Countess of Eglinton*, *Lady Musgrave*, *Mauve Queen*, *Baden Powell*, *Kathleen*, *Blanche*, and *Willie Farmer*.

Messrs. CARTER, PAGE & Co., London Wall, showed grand *Violas* in pans. The flowers were remarkable for their fine colours and large size.

Messrs. HEATH & SONS, Cheltenham, built a rockery at an angle of a grass plot, and planted it in some profusion with an interesting collection of succulents, but the plants were too small to produce the best effects. The rather large,

stiff-leaved *Saxifraga Willkomiana* was noted amongst these, also the New Zealand plant *Tanaka radicans*, a species of dwarf growth, with *Spiræa*-like flowers.

M. HENRI CORREYON, Jardin Alpin d'Acclimatation, Geneva, arranged a table with rare species of Alpine plants, which had, unfortunately, suffered a good deal in transit from Geneva.

Mr. CLARENCE ELLIOTT, Six Hills Nursery, Stevenage, Herts., staged on a table Alpines of a showy character, and many of them rare in gardens.

Messrs. PAUL & SON, Waltham Cross, showed a small decorative group, consisting of hardy subjects, such as *Lonicera*s of species, *Ceanothus*, *Cytisus albus*, a few plants of *Cupressus macrocarpa*, also *Pyrus angustifolius*.

AWARDS.

AWARDS OF MERIT.

Rose Excelsa (see fig. 157).—This variety belongs to the *Wichuraiana* section. It is a slender-growing, climbing Rose, which has already proved hardy. The colour is approaching to scarlet, and, mainly on this account, it will be regarded as amongst the best of the pillar or climbing Roses. The inflorescences show it to be a very free-flowering variety. Plants were exhibited by Messrs. PAUL & SONS, The Old Nurseries, Cheshunt.

Rhododendron Alice.—This variety is perfectly distinct from every *Rhododendron* in cultivation, by reason of its rich, pink colour, which remains the same shade throughout the petals. The truss is compact, and the flowers possess considerable substance. Altogether the variety is one to be highly commended.

Rhododendron Princess Juliana.—This variety has rather larger flowers than *Alice*; the truss is not so compact, and, as shown, the flowers appear to have less substance. The colour is white or pale pink, but specimens which came before our notice in Holland recently were deeper in tint. Both these *Rhododendrons* were shown by Messrs. J. WATERER & SONS.

Marguerite Mrs. F. Sander.—Those who have already had experience with double-flowered *Marguerites* will probably look askance at another novelty; however, in the variety *Mrs. F. Sander* it would appear that a very great advance has been obtained. The blooms are perfectly double, and pure white, measuring $4\frac{1}{2}$ or even 5 inches in diameter, and mimicking a first-rate flower of *Pyrethrum roseum*. We believe that this new variety has not been obtained from the Queen Alexandra type, but is a newly-introduced plant to Europe. The flower-stems would probably be more satisfactory if they possessed greater strength; but we are not certain in this criticism, as the wind on entering the tent may have caused them to bend when they would not otherwise have shown a fault. Shown by Messrs. F. SANDER & SONS.

Cytisus × *Dallimorei*.—This is a hybrid raised in the Royal Gardens, Kew, from a cross between *C. albus* and *C. scoparius* var. *Andreanus*, and named after Mr. Dallimore, who had charge of the Arboretum. The general effect of the flowers is rose colour and white. The hybrid may now be seen in full flower in a bed near the T range at Kew. Shown by the Director of the Royal Gardens, Kew.

Rhododendron sinense Floradora.—This is a new variety of the section of hardy *Rhododendrons* known as *Azalia mollis*. The flowers are very large and are produced in good trusses, the colour being orange flushed with salmon. Shown by Messrs. R. & G. CUTHBERT.

Sarracenia Willmottii.—This is a hybrid raised from a cross between *S. purpurea* and *S. Stevensii*. The lid is upright and very broad. The pitcher is also broad, and marbled with crimson, becoming more and more crimson with age. Shown by Mr. A. J. BRUCE.

Begonia Rose Queen.—A beautiful variety of the *Camellia*-flowered type, with very wavy petals. The colour is old rose. One of the plants exhibited carried eight well-developed blooms. Shown by Messrs. BLACKMORE & LANGDON.

Rhus typhina laciniata.—This very pretty, cut-leaved variety is fairly well known in gardens. It was shown by Mr. R. C. NORCUTT.

Rose Duchess of Westminster.—A rose-pink hybrid-Tea variety. Shown by Messrs. ALEX. DICKSON & SONS.

FRUIT.

It was probably due in some measure to the exceeding coldness of the spring that the display of fruit was very limited. There were, indeed, only two groups, one of stone fruit trees and one of Strawberries. The group of trees, as may be anticipated, came from Messrs. T. RIVERS & SONS, Sawbridgeworth, who set up in a large tent a very fine lot of Peach, Nectarine and Cherry trees, some 40 in number. The specimens ranged from $3\frac{1}{2}$ to 5 feet in height, and in each case were well fruited. The dominant variety was a new Nectarine staged as Seedling 101, and this was represented by some 10 or 12 trees, all well fruited. The fruits were very rounded, having a shallow suture, and showed very rich colour, almost scarlet, quite excelling Cardinal in that respect. It is a very early variety, and forces well. Other Nectarines were Cardinal and Early Rivers. The Peaches were Peregrine and Kestrel, and the Cherries were the red Elton and the black Early Rivers. A basket of 18 fine fruits of Peregrine Peach fronted the group, which was neatly dressed with foliage plants.

Messrs. LAXTON BROS., Bedford, had a very effective and tempting collection of Strawberries picked in some 24 baskets; also numerous fruiting plants in pots. The variety "Connoisseur" showed very rich scarlet colour, quite eclipsing the popular Royal Sovereign in that respect. The fruits are of a tapering form, flesh firm, and extra well flavoured. Other varieties were Bedford Champion and George Monro. Plants were shown of these varieties. The fruits of each variety were bright and of medium size.

VEGETABLES.

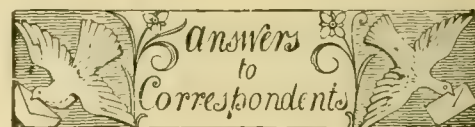
All vegetable lovers owe a debt of gratitude to Mr. E. Beckett, V.M.H. (gr. to the Honble. VICARY GIBBS, Aldenham House, Elstree), for the very fine collection he set up in the long tent. It comprised 90 dishes or mounds, and was representative of what British-grown vegetables can be at this season of the year when in the hands of capable growers. On an erect background were placed mounds of Late Queen, Sutton's Satisfaction, and Leamington Broccolis; Long Green and Moore's Cream Marrows; Early White and Red Milan Turnips; Sutton's Earliest and Flower of Spring Cabbages; stems of the Sutton Rhubarb; very fine Stanstead Park and other Cabbage Lettuces; good Giant French and Perfection Asparagus; and white and red Celeries; on the table were First Crop and Magnum Bonum Cauliflowers; Early Giant, Duke of Albany and Centenary Peas; Abundance, Winter Beauty, Perfection and Princess of Wales (red), and Sunbeam, Golden Perfection, and Golden Nugget (yellow) Tomatoes; Duke of York, May Queen, Purple Eye, King Edward VII. and other Potatoes; Satisfaction, Matchless and Delicacy Cucumbers; several varieties of Carrots; Long Pod and climbing French Beans; several small-fruited Marrows; numerous Radishes; mounds of Mustard and Cress; and capital Mushrooms.

FROM THE THATCHAM FRUIT AND FLOWER FARM, Newbury, Berks., was staged a collection of some 40 dishes of vegetables, including good samples of William IV., World's Record, and Pilot Peas, of which also were numerous plants in fruit draping the background; also bunches of Jersey Nanet Turnips, Nantes Carrots, May Queen Potatoes, French Breakfast and other Radishes, Cabbage Lettuces, Cucumbers, Vegetable Marrows, and Tomatoes.

Mr. S. MORTIMER, Rowledge, Surrey, set up an attractive exhibit in three large shallow boxes of Tomatoes Sunrise and his new Improved Sunrise, one box showing racemes of fruit, the other picked fruits. This latter variety showed finer fruits and deeper colour than the original variety. Fronting these were boxes containing eight fruits of Cucumbers Improved Telegraph, King George (fruits "long and green"), Express, Bounteous, and Delicacy.

Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester, was the only exhibitor of Asparagus, having six bundles of Giant, the stems being 10 inches long and very stout.

(For Awards made by the Council see page IX.)



EMPLOYMENT ON RUBBER AND TEA ESTATES: A. McK. Your best plan is to insert an advertisement in some paper (such as *The Tropical Agriculturist*, Colombo, Ceylon), published in the districts where rubber and tea are grown. There is a paper devoted to the rubber industry, called *The Rubber World*, and published in London. You should secure a copy from your newsagent and scan the advertisement columns. The address of the Imperial Institute is South Kensington, London.

FIGS DISEASED: J. D. M. The trees are affected with a fungus—*Cercospora Bolleana*. The disease can be kept in check by spraying with dilute Bordeaux mixture, but badly attacked trees cannot be cured and should be dug up and burned. In any case be careful to burn all fallen leaves, and others that show evidence of disease.

FUNGUS: A. C. S. The fungus found on the bark of a tree is *Collybia velutipes* in an immature condition.

GRUBS ATTACKING CARROTS, &c.: Derby. The grubs are the larvæ of Daddy-long-Legs (*Tipula oleracea*). Place traps of some vegetable, such as Potato or Turnip, in their haunts, burying the traps just below the surface of the ground.

NAMES OF PLANTS: James Geddes. 1, *Ledum palustre*; 3, *Philadelphus Coulteri*.—G. F. *Pyrus salicifolia*.—J. A. A. 1, Specimen not found; 2, *Diervilla japonica* var. *hortensis*; 3, *Clematis montana*; 4, *Cytisus scoparius* var. *Andreanus*; 5, *Magnolia Soulangeana*; 6, *Grise-linia littoralis*.—R. B. *Saxifraga muscoides*.—H. F., *Uitenhage*. *Plectranthus saccatus*, Benth. See *Bot. Mag.*, t. 7341 (1902), and Wood and Evans' *Plants of Natal*, vol. i., t. 85. J. R., Tyne. *Oncidium sphacelatum*. J. G. *Odontoglossum Adrianae*.—A. N. 1, *Oncidium pubes*; 2, *Oncidium sphacelatum*; 3, *Odontoglossum Lindleyanum*; 4, *Masdevallia radiosa*; 5, *Brassia verrucosa*.—T. B. C. *Ixia conica* figured in the *Botanical Magazine*, t. 539.

PEAS: E. P. The Peas have been kept under observation up to the present, but there is still no evidence of disease.

RHODODENDRON (AZALEA) AND TOMATO DISEASED: R. G. The *Rhododendron* leaves are affected with the gall fungus, a species of *Exobasidium*. You can prevent the disease from spreading by picking off and burning the affected leaves. The Tomato is also attacked with disease. Spray the plants with the Bordeaux mixture or liver of sulphur.—Souci. The blisters on Azalea are caused by the fungus *Exobasidium rhododendri*. Diseased leaves should be removed to prevent spread of the disease. We were unable to discover any scale or other pest on the remaining specimens. J. H. Root-rot, caused by the mycelium of *Armillaria mellea*, is destroying the root. Lime is the best preventive; but, of course, cannot be applied under the circumstances. Soak the soil with a solution of nitrate of potash, applied at the rate of one ounce in two gallons of water.

VINES "BLEEDING": Reader. The cause of bleeding is either late pruning or keeping the borders too warm after pruning. The surroundings of the vine at its resting stage should be absolutely cold, and also for some time after pruning. The leaves you sent have been scalded; no disease is present. Ventilate the vinery early in the daytime.

WATER-LILIES AND CATTLE: A. W. We do not think the presence of *Nymphæas* in the pond will harm the cattle. In marshy districts, where cattle is largely pastured, the ponds and dykes are often covered with the white Water-Lily.

Communications Received.—S. & Sons—A. M.—J. P., Cheshire—F. W. C. S.—Subscriber—G. R.—A. B. H.—C. P., Bucks.—S. H. T.—Lady C., Guildford W. M.—A. O. H. R.—M. Mc N.—M. T.—J. C. & Co.—G. B.—W. F. G.—Z. O.—Anxious—J. V. & Sons The Jamaica Agency—H. A. P.—K. & B., Darlington—T. J. L.—Roya. Meteorological Society—H. R. & Sons—E. A.—B. W. B.—W. G. S.—H. J. V.—G. W. S.—C. F. B.—J. D.—R. B.—A. P.—B. S.—A. H. T.—Mrs. I. S. E.—P. G.—T. S.—S. C., Wisbech—E. H. K.—F. M.

THE Gardeners' Chronicle

No. 1,223.—SATURDAY, June 4, 1910.

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SOME FRUIT TOPICS.

THE most striking discrepancy between promise and performance this season is that of Pears. Never have I seen such a general profusion of blossom on the several varieties as appeared this year. Moreover, the blossoms were strong, and they remained open an extraordinarily long time. Yet the setting of fruit is most meagre and reports from various districts indicate that this failure is common. What is the cause? It can hardly be frost in my case, because, after the blossom was open, we had not more than 3° on any occasion, and this much only once, as registered by two thermometers in an unprotected position at 4 feet from the ground. One was on a level as high as the top of the orchard containing Pear trees, and the other was on a lower level than the bottom of the orchard. As a rule, we have more severe frost on the lower level, but this was not the case on the occasion under notice. The blossom was dry when the frost occurred and it is not credible that it was killed by 3°. My theory of explanation is that bees and other insects were prevented from doing their fertilising work by the wet and cold weather which prevailed during the whole of the Pear-blossoming period, and, that the blossoms of varieties which are not self-fertilising remained sterile, except where different varieties nearly touched each other. This explanation is supported by the fact that the only fair setting

of fruit in my case has occurred where several varieties are close together; whereas in a row of Clapp's Favourite situated 20 yards from any other Pear there are not six fruits set on trees that might have borne two bushels each. Similarly, among 12 rows of cordons, mainly Clapp's Favourite, which might have yielded 2,000 Pears, there are not two dozen set, although these are on the side where three rows of other varieties are growing.

With respect to Gooseberries and Currants, among which dropping has occurred even on my southern farm, there is no doubt that the frost was much more than 3° close to the ground. That the damage in this case was due to frost is indicated by the complete destruction of the blossom of Black Currants in a particularly low and sheltered corner of a field, whereas in the rest of the plantation only the two or three terminal blossoms on an inflorescence were damaged. Moreover, a field of Gooseberries on high ground escaped injury entirely. In some districts where frost was much more severe than it was here the Gooseberry crop is reported to be only half, and the Black Currant crop only one-fourth of the average.

Plums never promised to be a great crop, but the set of fruit is not even equal to the moderate expectations. Rivers's Early Prolific, which promised about a fifth of an average, judging from the blossoming, will not yield a tenth; and Monarch, which seemed likely to give a quarter of a crop, will not yield a sixth. Czar, Victoria and Pond's Seedling have set their blossom well, but there are many fruits of diminutive size, which are certain to drop sooner or later. Choice dessert varieties never promised well, but they are not equal to the low expectations. It still remains to be seen how the embryo fruit will pass through the stoning period.

Most of my varieties of mature Apple trees blossomed profusely, though with more or less numerous examples in some of them, almost or quite bare of bloom, the exceptions being Bramley's Seedling, Royal Jubilee, Dummelow's Seedling, and Blenheim Pippin, which were very short of flower. Immature trees, old enough to bear moderately well, never promised, on the whole, to give much fruit, the supposed reason being as stated in my article on p. 309. The proportion of fruit varies greatly; it is satisfactory in some cases and very much the reverse in others. Nearly all the blossom on Blenheim Pippin has fallen, and a large proportion of that on Duchess of Oldenberg, Cox's Orange Pippin, and Stirling Castle. Probably the cold and wet weather prevented fertilization to a great extent, and Apple suckers and caterpillars may have helped materially to produce withering. On the whole, there is reason to fear that the Apple crop in my case will be less than the average.

THE BATTLE WITH FRUIT PESTS.

The extraordinary immunity from aphids attack is still a gratifying feature of the season here, so far as Apples are concerned. A late attack developed on Plums, but not to a very serious extent. An infestation of Apple sucker extended during May to many varieties on which it had not been found before the blossom opened. As stated last month, trees that were sprayed with quassia and soft soap

while the closed blossom buds were showing in clusters had the suckers on them killed to a great extent, but they required a second dressing after the petals had fallen. Unfortunately, two or three varieties which were not sprayed in the first instance, because no suckers, or none worth notice, had been found among them, became badly infested later. In such cases much damage was done to the trusses of blossom before the petals fell, and spraying was carried on again.

Various caterpillars have injured the foliage and embryo Apples alike, the attack being much worse than usual. In the fight against these enemies the fruit-grower is sadly handicapped. He cannot poison them while they are feeding inside clusters of leaves that have not expanded, and in our climate the expansion is frequently delayed by cold weather, as it was this season. When the leaves have expanded the blossom is open, and then a poisonous spray would kill bees and other fertilizing insects. After the petals of the blossom have fallen irreparable injury has been done, but further damage must be prevented by prompt action. Even this is not safe if there are Gooseberry bushes under the trees, as the berries are then almost or quite ready for marketing, and it is a criminal risk to spray with arsenate of lead or Paris green at such a time. Caterpillars feeding among the clusters of blossom must have helped, as well as the suckers, to impair their vitality.

A repetition of the attack of aphides on the ends of shoots of Black Currants, referred to last season, began towards the end of May. These pests, which do not appear to be recognised by entomologists, are black to the naked eye, but appear as olive green in colour when magnified. They feed on the stems of the shoots under leaves curled over them umbrella fashion—not on the leaves themselves. Spraying does not wet them all, and they increase so rapidly that anything short of perfect clearance is of comparatively little use. This season, accordingly, a new method of encountering them is being pursued. Women carrying small receptacles filled with strong quassia and soft soap wash traverse the rows of bushes, and when they find an infested terminal to a branch they immerse it in the liquid by bending the shoot down into the vessel. This is completely effectual; but the plantation must be gone over two or three times at intervals, because the infestation does not take place all at one time.

Reference has still to be made to one cause of defective setting of fruit-blossom. As anticipated, brown-rot is unusually prevalent among Apples and Plums, and many fruit-spurs with their clusters of blossom have been destroyed by the fungus, as well as shoots. Powdery mildew among Apples is also in strong force, affecting ends of branches chiefly, and trusses of blossom to a comparatively small extent. Canker in young shoots, too, is in evidence. Cutting off and burning affected shoots and spurs is part of the remedy in each of these cases, while spraying with the Bordeaux mixture should follow. This will take place for scab in relation to many varieties of Apples, so that all the fungus enemies can be encountered in the same operation or operations. Traces of scab on the leaves of some varieties of Apples and Pears were noticed before the end of May. *A Southern Grower.*

WILTON HOUSE, SALISBURY.

(See Supplementary Illustration.)

WILTON HOUSE, the seat of the Earls of Pembroke, is situated about three miles to the north-west of Salisbury. The house takes its name from the small market town of Wilton, a place of rather more than 2,000 inhabitants. Whilst Sarum has grown into the important Salisbury, Wilton has declined from its former greatness, although it gave the name to the county, and was once the seat of a bishopric, besides being the capital of Wessex. The ancient Abbey of Wilton was one of great splendour, but this has long since disappeared, and Wilton House now

The Supplementary Illustration gives a glimpse of the mansion, which is built of stone quarried at Chilmark on the estate; the same quarries supplied the stone for building the Cathedral at Salisbury. The pavilion shown in the bottom picture is the work of Inigo Jones, and from its steps a very fine view is obtained over the Italian garden. Both the views represented in the illustration were taken in this garden. The stone-enclosed beds are beautiful in spring-time with Tulips and other bulbous plants in company with Wallflowers, Arabis and Myosotis. Later in the season their places are taken with summer-bedding plants, the air being frag-

most exquisite fashion. It was one of the entrances to the old Wilton House, now demolished. A fine old Lime tree grows to the left of this porch, whilst a little further on to the right is an Orangery, now utilised for Palms. In front of the building are scroll beds and many trees of *Cupressus erecta spicata nana*, which have a very formal appearance. A door at the back of the Orangery leads into a glasshouse with a north aspect, which is valuable for keeping plants backward or retarding them when in bloom. Beyond this is a "reserve" garden, with a newly-erected glasshouse for growing bedding plants. In the construction of this house no paint or putty has been used; the glazing has been done by means of copper clips; whilst paint was not considered necessary, as the house is not used for show purposes, and another structure has remained sound for 40 years without ever having been painted at all.

Tuberous-rooted Begonias are extensively employed in the flower-beds, also Zonal, Ivy-leaved and scented-leaved Pelargoniums. We were pointed out a strong-growing Pelargonium of the Clorinda type, but with much finer flowers, the colour being deeper. Heliotrope is propagated largely for bedding, Mme. de Bussey being the favourite variety, as this gives the largest and best trusses. Other common sorts of bedding plants are grown in large numbers, and there is a good stock of subjects for the sub-tropical garden, including Musas, Eucalypti and Cordylines. Seedlings of *Pinus canariensis* were very pretty, these being also used for bedding.

We noticed several rooted cuttings of Italian Cypress taken from a tree that passed through the winter of 1870 uninjured, when nearly all its fellows were killed by the cold. Believing this to be due to an extra vigorous constitution, Mr. Challis is wisely perpetuating the variety, and intends to plant it extensively at Wilton.

(To be continued.)

HYMENOCALLIS × SULPHUR QUEEN.

THE hybrid *Hymenocallis* with pale sulphur-coloured flowers, illustrated in fig. 159, was obtained from a cross between *H. calathina* (*Ismene calathina*) and *H. Amancaes* (*Ismene Amancaes*) the two best of the Peruvian Daffodils. The seed-bearing plant was *H. calathina*. Mr. C. G. Van Tubergen, junr., who showed a plant at the recent Haarlem exhibition, informs us that the hybrid grows perfectly well during summer in a deep, rich soil in a sheltered place out-of-doors. The bulbs are planted towards the end of April, and when the foliage is cut down by frost in the autumn, they are harvested and kept perfectly dry and warm during the winter. The plant is also a suitable subject for cultivation in pots in an unheated, sunny greenhouse.

Visitors to the Haarlem exhibition who took the opportunity to inspect the nurseries of Mr. Van Tubergen, which are situated close to the exhibition grounds, were delighted with the many interesting bulbous plants to be seen in cultivation there. Great breadths of *T. Greigii* had thousands of its brilliant, scarlet flowers open, whilst *T. Forsteriana*, a species not unlike *T. Greigii*, appeared even brighter than that species as seen in the sunshine. Another Tulip which was imported from Bocara a few years ago has just been declared by the Russian botanist, Mr. Boris de Fedichenko, to be a new species, and he proposes to name it *T. Hoogiana*. We may refer to this plant again. The nursery is extremely rich in its collection of Tulipa species. Another interesting feature was the extraordinary collection of *Eremuri*. These were represented in very large numbers, *E. robustus* and *E. Elwesianus* being quite in separate batches and selected in order to show as much distinctness as possible.



FIG. 159.—HYMENOCALLIS × SULPHUR QUEEN.

occupies the site. In common with all such old ecclesiastical centres, the spot was selected as much for its natural beauties as for its fertility, and, fortunately, neither time nor the hand of man has destroyed the setting. Wilton has many claims to notice in its antiquity, buildings, statuary, gardens and pleasure grounds. The antiquarian will find there the oldest building in a county renowned for its past history—an old seminary used as a barn; Roman statuary, and the beautiful carvings of Holbein and Inigo Jones which excite the wonder and admiration of the visitor.

rant with Roses, that clothe the terrace walls. There are many statues and vases, the latter being furnished in summer time with flowering plants. It is a place of great beauty, tree, shrub and flower playing their parts in company with fine sculpture mellowed by age. The Tulips were not quite over at the time of our visit, and we noted as some of the most pleasing beds Tulip Soleil d'Or interspersed with Wallflowers; Tulip Brilliant and *Myosotis dissitiflora*; and Tulip La Candeur, Yellow Wallflowers and *Myosotis dissitiflora*. At the far end of this garden, opposite the house, is a porch sculptured by Holbein in

THE ROSARY.

CULTURAL HINTS FOR JUNE.

Roses generally made a better show a month ago than they do at the present time, for most of the plants have suffered greatly from north and east winds. The old-fashioned summer-flowering Roses should not want much attention except to cut out the dead and injured shoots. Hybrid China Roses, Moss and Province Roses, hybrid Sweet Briars, and the Ayrshire and Boursault climbers, also varieties of the Rambler section, will need to be carefully secured from strong winds; any shoots that are frost-killed at the end should be shortened. Mulch the beds containing plants which have suffered greatly, as it may tend to induce them to make a good secondary growth. Later, when this growth is well commenced, apply frequent waterings with liquid manure. All suckers from the stem should be removed promptly.

BUDDING.

It will soon be possible to see which shoots on the standard briars are strongest, and it is only

both by day and night. They should be sprayed with some good insecticide, and, following this application, they should be syringed with clear water from the garden engine. The grafted plants plunged out-of-doors are now growing freely; the long, straggling shoots can be stopped during July.

ROSES IN TOWNS.

The cultivation of Roses in towns and suburban districts is often a matter attended with much difficulty. The only way to prevent disappointment is to get the hardiest and most vigorous-growing varieties which are known to be capable of withstanding an atmosphere laden with smoke and smuts. The worn-out garden soil should be replaced with good turfy loam, well-rotted manure, and half-inch bones. The present season is too far advanced for this kind of thing, but the soil at the surface may be removed down to the roots, and a good top-dressing applied of a compost similar to that described above. I have known the following varieties succeed fairly well as dwarfs on the briar stock; but standards are only very short-lived, and are not to be recommended. The old Common Moss, Crested Moss,

Tea varieties, arise, in many instances, through planting unsuitable varieties for the locality or soil. Hybrid Teas will eventually receive most favour, but what is wanted is more crimson colour in this section, such as is found, for instance, in Liberty, J. B. Clark, General McArthur, and Marquis of Salisbury, but better quality in the flowers. I am glad to find that the long, well-ripened shoots of the Hybrid Perpetuals pegged down during autumn and spring have escaped injury from frost in a marked degree; but others which were not laid down show even at this time, the effects of frost and cold winds.

EXHIBITION ROSES.

Rose growers for exhibition need to secure well-developed blooms of good form and substance, and this has to be done by persistently thinning out the weakly growths several weeks in advance of the exhibition, and thinning the buds according to the time when it is necessary to obtain perfect flowers. Exhibitors should have duplicate blooms of each variety intended to be shown. The best flowers are usually produced by the maiden buds on plants budded in the previous year. Unless there is a change in the weather very soon, the maiden buds will only produce flowers early enough for the later shows, and growers will have to fall back on their "cut backs" for the earliest flowers.

The feeding of the plants must be given careful attention for several weeks before flowers are required, and protection and shade must be given the blooms during their development. For stimulating Roses in June, I have found nothing better than cow manure and soot, using about one-third of the former and two-thirds of the latter in a tank holding about 30 gallons of water. The mixture is put in a bag, and after a few days this can be further diluted one-half, and applied three times a week. At every third watering a change of stimulant in the form of a chemical fertiliser may be used to advantage. J. D. G.



FIG. 160.—*CORNUS CANADENSIS* IN FLOWER AT KEW: BRACTS WHITE.

necessary to retain two on each briar. They should be equilateral, and as near to the top of the stem as they can be obtained. So far as can be seen at present, the general budding season will be as late as July. Complete the staking and tying of the maiden buds, both on standards and dwarf plants. Guard against insect pests and mildew by spraying the plants with a strong, warm solution of Tobacco and soft soap. Keep the Dutch hoe well employed amongst the beds and borders during dry weather. Apply mulches of stable litter and thorough soakings of water as often as may be required.

Both Briar and Rose cuttings are looking well, and if care is taken in shading and watering them, there is every promise of a good season. Pot Roses of all descriptions, except those undergoing propagation, should be placed out-of-doors to give them a rest. Roses planted in houses having fixed roofs require abundant ventilation

Rosa rugosa, Common and Crested Provence, Hybrid Chinas, Blairii No. 2, Coupe de Hebe, Paul Ricaut, Mme. Plantier, and York and Lancaster (Damask). A few hardy Hybrid Perpetuals do fairly well for a year or two, but require frequent renewal. Such are the following varieties:—Magna Charta, General Jacqueminot, John Hopper, Victor Verdier, Senateur Vaisse, Ulrich Brunner, and Dupuy Jamain.

Plants rooted in the spring from cuttings and now growing out-of-doors on hot-beds, may now have the glass lights removed entirely. If the spent hot-bed is turned over afresh and well trodden down, the plants can be set out further apart to allow room for further development of growth. Any that require a shift to a larger-sized pot may now be given it. The longer shoots may be stopped early in August to promote a compact growth. The annual losses in the Rose garden by failures in the Hybrid Perpetual and tender

CORNUS CANADENSIS.

Most of the members of the Dogwood family are of shrubby habit, while a few form small trees. Many of them, like *C. alba*, and its variety *Spaethii*, have very ornamental foliage combined with stems and branches that are clothed with bright-red bark, which make them attractive subjects for the shrubbery. Others, like *C. Mas*—the Cornelian Cherry—are useful, early-flowering plants. Quite different in habit, and forming a small section apart from the rest is *C. canadensis*, the Dwarf Cornel or Bunchberry (see fig. 160) and our native species, *C. suecica*. *C. canadensis* is a small plant of herbaceous habit, with creeping underground rhizomes and upright simple stems about 6 inches high, and spreading freely when established. The leaves are produced in a whorl of four or six at the summit of the stem; the minute flowers are surrounded by four rather large, white or cream-coloured bracts, which remain conspicuous for a long time. The plant is one of the prettiest subjects for carpeting cool and shady parts of the rock-garden. It thrives well in peaty soil, but is a difficult subject to transplant, as it does not recover quickly after root disturbance. The flowers are succeeded by red berries, and the leaves later in the season are tinted with bronze. The species has been in cultivation since 1774; it is found in North-eastern Asia and right across the continent of North America, extending as far north as the Fir forests. *C. suecica* is closely allied to *C. canadensis*, and is a native of Northern and Arctic Europe, Asia and North America. In Britain it occurs on the high moorlands from Yorkshire northwards. Whilst *C. canadensis* flowers in May, *C. suecica* flowers in July and August, the flowers being attended by rather large, white bracts. Both the species may be increased by division or by seeds. W. I.

NOTES FROM A "FRENCH" GARDEN.

THE Carrots have all been marketed from the frames. Those growing concurrently with the Cos Lettuces require abundant waterings, and may be pulled as they become ready. The batch sown early in March in the open has been thinned, and must also be watered frequently.

As soon as the Carrots have been cleared off the ground, the beds are hoed and raked carefully, care being taken not to damage the Cauliflowers. As these are now forming their inflorescences, the curd is covered carefully with leaves broken from the base. Though the Cauliflowers have their roots in the manure of the old beds, they require copious waterings.

Plants of the third batch of Cos Lettuces grown under the cloches are now marketed; those planted in the open to provide a succession will be ready for cutting in the course of a few days.

The last batch of Passion Lettuces grown in the open was marketed last week; the beds have since been hoed, and the Cauliflowers planted amongst them a month ago mulched.

The Melon plants have progressed favourably during the past two weeks, and half of them are now showing fruits. The stopping of all the side shoots to the second leaf requires a considerable amount of time, as it is imperative it should be done carefully and at the proper stage to avoid giving a check to the plants.

During the very hot weather the plants are given three gallons of water at the roots on alternate days before breakfast. In very sandy soil, and especially after the fruits are well set, three gallons of water daily is not an excessive quantity.

Ventilation is given before 8 a.m., and until 6 p.m. on bright days. No covering is necessary for the earlier batch in calm weather.

The few Melons planted in rows in the first days of April should, with favourable weather, ripen some of their fruits by the middle of June. The plants were given careful attention during the cold and wet weather in April.

The market returns of the Spring Lettuces have proved once more that there is no profit to be obtained from very early Lettuces. The prices for good heads were far from remunerative till

It is almost invidious to make comparisons where all are fine examples of colour photography, still, to my liking, Masterpiece, for its cool yet delicate effect, is the best picture, but Queen Alexandra and Clara Curtis, though somewhat harder, are also very fine.

Mr. Wright excites wonder at the outset by stating that British seedsmen distribute annually 448 millions of Sweet Pea seeds, a number impossible to appreciate, but it helps us to realise something of the fascination of the Sweet Pea and the love it excites in all classes. The author foretells for it a still greater future, with variations from the three present types, and probably more lovely colours. In a chapter on general culture he describes some of the essentials to success, stating that deep cultivation and a not-too-liberal use of manures are most important. The various methods of culture out-of-doors, as well as under glass, are fully treated upon, as also autumn and spring sowing, its advantages and defects; enemies and diseases, of which "streak" is treated as of no importance, provided the plant is destroyed on its appearance. If the appearances were to be numerous, its importance would be apparent, but Mr. Wright expects that only an odd plant or so will ever be affected. He reduces the varieties to be grown to a select 50, and a second selection, the quintessence of these, is made for those who need only a few sorts.

A chapter by Mr. Thomas Stephenson on "Sweet Peas for Exhibition" is included, in which excellent advice is given on everything connected with this absorbing passion—it is said to be worse than golf or aviation. A list of names of suitable varieties is added, these being very similar to those of Mr. Wright's selection. The book concludes with "a word or two to judges" and a full index. I close the volume with the feeling that it is a credit to all concerned. R. P. Brotherston.

THE "WEEKLY TELEGRAPH" GARDENING BOOK.*

AN inspection of the pages shows that these are lavishly illustrated, the first picture being a rock-work in Battersea Park. The subjects described are taken alphabetically. There is a short descriptive note attached to each illustration, but the cultural directions, which are of paramount importance in a manual intended for the use of cottagers and amateurs, are very meagre. The list of novelties in flowering species suitable for pot culture, for bed and border decoration, is well up to date, and the plants are, in most instances, afforded illustrations. We find figures of Ferns and Cacti, and a note concerning the soil, and other materials in which these plants succeed.

The vegetable garden is more fully treated upon than the flower garden. The book concludes with a short calendar of operations for each month.

IRIS WILLMOTTIANA.†

THIS Iris was introduced by Mr. van Tubergen from the mountains of Eastern Turkestan. It belongs to the dwarf Juno section, and flowers in April. The plant is similar in habit to *I. caucasica*, with a glistening green blade, and white, horny margin to the leaf. The flowers are sessile in the axils of the leaves, from three to seven flowers being borne on each stem, according to its strength. The top flower opens first, and the others successively downwards. In colour, the flowers are a soft lavender-blue, with blotches of white on the falls; but it is stated that the colour varies in different plants. The species is proving a free and easy grower. C. F. Ball, Royal Botanic Gardens, Glasnevin, Co. Dublin.

* Published by the proprietors of the *Weekly Telegraph*, London, E.C., and Sheffield. 1s. net, demy 8vo.

† Described by the late Sir Michael Foster, with illustration, in *Gardeners' Chronicle*, April 27, 1901, p. 261, fig. 100.



FIG. 161.—IRIS WILLMOTTIANA FLOWERING AT GLASNEVIN: FLOWERS BLUE AND WHITE.

When this latter crop is not too forward, two rows of Radishes or Spinach may be sown between each row as a catch crop before the Cauliflowers require the room. A batch of Endive La Rouennaise has been inserted in a cold frame to be planted at the end of June on the old manure bed. A prevailing idea among French growers is that all curled Endives must be sown under glass till June 20, or the plants will seed prematurely.

Tomatos have been planted in their final quarters at 18 inches apart each way. Our plants are beautiful specimens, being well-hardened and showing the first truss of bloom. The natural dampness of the soil has been sufficient for their growth, from the seedling stage, without further moisture.

Their place in the frames has been occupied by the Ridge Cucumbers, sown in the Melon beds late last month. As the ground was manured heavily for the Tomatos, it will be in excellent condition for the Spring Cabbages or Onions planted in the autumn.

February 20, but after this date prices were better till March 13, when their value declined again, as a large quantity was available from the hot-beds. The best prices were obtained from April 1 till May 10. P. Aquatias.

NOTICES OF BOOKS.

SWEET PEAS.*

THE first volumes in the "Present-Day Gardening" series, edited by Mr. R. Hooper Pearson, are excellent. The illustrations in Mr. Wright's volume on Sweet Peas at once enlist sympathy on behalf of the book. These embrace Helen Lewis, Evelyn Hemus, Queen Alexandra, Mrs. Hugh Dickson, Clara Curtis, Sunproof Crimson, Masterpiece, and a selection of 15 varieties to show form and range of colouring.

* *Sweet Peas*, by Horace J. Wright, with eight coloured plates from photographs. (London and Edinburgh: T. C. and E. C. Jack.) Price 1s. 6d. In the "Present-Day Gardening" Series edited by R. Hooper Pearson.

MR. J. F. McLEOD.

A FEW weeks ago we published an article on Dover House Gardens, with illustrations. We now present a portrait of Mr. J. F. McLeod, the agent and gardener at that place, together with a few particulars of his career.

Mr. McLeod was born in 1863 in Inverness-shire. His father was estate-manager and gardener to Major McDonald of Glenfinnan. After leaving school, the son worked in the gardens at Glenfinnan for two years, and then went through a course of work on the farm. During several succeeding years a few months in each winter were taken advantage of for the purpose of attending school, the rest of the time being occupied in farm work. This practice used to be common in Scotland, especially before the institution of school boards, and in consequence many of the scholars at the winter courses were grown-up men and women. For several years afterwards he devoted his time to acquiring a knowledge of farm work, stock-raising, and forestry, but subsequently, being urged by his

House, Roehampton, which belonged to the late Julius Spencer Morgan, Esq., father of J. Pierpont Morgan, Esq., the present owner.

Dover House gardens being situated on the old valley gravel similar to that of Wimbledon Common, Putney Heath, and Richmond Park, they would be exceedingly difficult to manage were it impossible to increase the fertility of the land by the introduction of large quantities of fresh soil and organic and chemical manures. Fortunately, Mr. Morgan, desiring that the gardens and estate should be maintained in the best condition, allowed his gardener a free hand in carrying out the measures he considered necessary to supply natural deficiencies. In consequence of this, many of the large beds have been remade with Banstead loam, and the general soil of the garden has been improved by additions made from time to time.

In the last few years Mr. McLeod has made many outdoor improvements. Old shrubberies have been uprooted, and beds of choice trees and shrubs have been planted in such combinations as produce very beautiful effects.



MR. JAMES FINDLAY McLEOD.

mother to adopt gardening as a profession, he was apprenticed in the gardens of the late Colonel Ogilvy at Rannagulzion House, Perthshire, in November, 1880, at a much later age than the average apprenticeship is commenced in Scotland. In the autumn of 1883 he was employed as journeyman in the gardens of Miss Fotheringham, of Tealing, Dundee, where he remained one year. The next two years were spent in the West of Scotland in the gardens of the late John Gordon, of Aikenhead, Cathcart. This garden was specially well maintained, and plant growing, including hard-wooded species and Orchids, were specialities. The late Mr. T. Hogg, the head gardener, was one of the leading prize-winners at the Glasgow shows for plants and vegetables. From Aikenhead Mr. McLeod moved into the county of Fife, and three years were spent in the gardens of the late John Balfour, Esq., Balbirnie. The Balbirnie gardens were then under the charge of Mr. Wm. Henderson, the present gardener. They were not only extensive, but were maintained in a condition equal to any in the county.

In September, 1889, Mr. McLeod left Balbirnie in order to take charge of the garden at Dover

Not only have the grounds been extended and remodelled, but, under Mr. McLeod's direction, many of the buildings have been renewed and new ones erected. The farm buildings have been enlarged and brought thoroughly up-to-date. Three span-roofed Orchid houses, connected by a corridor, have been built; a Palm house, a large span-roofed Fig house, two long span-roofed pits, and about 1,000 feet run of cold and heated frames. The frame ground is exceedingly well arranged and protected by high, closely-cut Privet hedges. Adjoining the frame ground, a new bothy has been built, affording every necessary convenience for the young gardeners. Although Peaches, Nectarines, vines, Figs, Strawberries, and outdoor fruits are grown with great success at Dover House, Mr. McLeod's fame as a culturist rests principally upon his successes with indoor flowering plants, and of these he has exhibited collections from time to time. Carnations are his chief speciality, including the perpetual-flowering or tree type, border Carnations, and the Souvenir de la Malmaison section. In summer, there may usually be seen a first-rate display of border varieties in flower out-of-doors, but it is the "Malmaison"

Carnation Mr. McLeod has most closely studied. Years ago, when cultivators were unable to succeed with these plants owing to the fungus disease (*Helminthosporium echinulatum*), Mr. McLeod was showing specimens in 16-inch pots with 50 growths upon each plant, bearing large, well-developed leaves from their points to their very base. Some of these were illustrated in our own pages (see *Gardeners' Chronicle*, July 2, 1898, pp. 3, 5, figs. 1, 2). In those days it was the custom in many places to remove the "Malmaison" Carnations out-of-doors in summer-time, and Mr. McLeod was among the first to discontinue this practice. He found that when the plants were subjected to rains and dews the leaves became of a softer texture, and therefore more readily preyed upon by disease. He has since endeavoured to keep the leaf surface moderately dry at all seasons of the year, but particularly dry throughout the winter months. It is mainly owing to the same culture having been adopted in other places, that the "Malmaison" varieties may now be more frequently seen in good condition than formerly.

Other indoor plants which are cultivated in very large numbers at Dover House are Begonias, Calanthes, Cannas, Cyclamen, Gloxinias, Zonal and Regal Pelargoniums, Richardia Elliotiana, Nerines, and Chrysanthemums. The stock of Nerines includes 600 plants in various sizes, and those who know the valuable nature of these plants at the present time may imagine how much such a collection is worth. Mr. McLeod has raised many seedling varieties of Codium (Croton), some of which have been introduced to commerce, including varieties named Mrs. McLeod, Florence, Norman McLeod, &c., all these being narrow-leaved varieties.

Amongst the numerous medals he has been awarded for exhibits at the horticultural shows, one which is most prized is a Jubilee Commemoration Medal awarded by the Richmond Horticultural Society for the best exhibit, whether competitive or non-competitive, in the show. The group which secured this award was composed of Souvenir de la Malmaison Carnations. Mr. McLeod has several medals from the Royal Horticultural Society, and a gold medal awarded for an exhibit of Codiums exhibited at the Earl's Court Exhibition in 1892. In another direction Mr. McLeod is also an exhibitor, namely, at the shows for the Guernsey breeds of cows, but this part of his work is outside our view. He has been a member of the Floral Committee of the Royal Horticultural Society and a member of the Executive Committee of the Royal Gardeners' Orphan Fund for many years past, and during the present year has been called upon to judge at an international exhibition in Holland. Mr. McLeod is a strict disciplinarian, requiring efficient service in every department, but he takes a keen personal interest in the future of the young men employed in Dover House gardens, whilst his geniality in public and faithfulness in friendship are personal qualities for which he is widely esteemed.

ORCHID NOTES AND GLEANINGS.

DENDROBIUM TRANSPARENS.

RECENTLY-IMPORTED plants of this pretty and fragrant Dendrobium are now flowering in the nurseries of Messrs. Jas. Veitch & Sons, at Chelsea. Years ago it was frequently seen in gardens, but latterly it appears to have become scarce, in common with the smaller *D. amenum*, and the larger *D. litiflorum*, both of the same section and inhabiting the Himalayan ranges of Northern India. The flowers, which are very freely produced, are white, tinged with pale purple, and they have purple markings on the disc of the lip. Coming from high altitudes, it is probable that the custom of growing the species in too high a temperature frequently caused the loss of the plants. When the plants are in growth, a warm, moist house is essential, but

during the resting season a long period in a cool greenhouse or vinery admits of them being kept inactive until their proper growing season arrives. If they are kept during the resting season in too high a temperature, like other *Dendrobiums*, they send forth weak growths and gradually decline in vigour. Various other *Dendrobiums*, also fine varieties of *Catleya Mendelii*, and *C. Mossia*, *Cymbidiums*, *Odontoglossums* and *Masdevallias* are in bloom with Messrs. Veitch, and the fine collection of *Nepenthes* are developing their new pitchers.

LÆLIA CHAMONICENSIS (PURPURATA × JONGHEANA).

FLOWERS of this interesting hybrid are kindly sent by Eustace F. Clark, Esq., Chamonix, Teignmouth, who raised it from seeds of the cross indicated. The flowers, which are equal in size to those of *L. Boothiana*, to which species it bears a resemblance in colour, are light, rosy-lilac, with mauve-purple colouring and veining on the lip, which in its crimped margin shows *L. Jongheana* distinctly. The lip has a yellow disc which, seeing the great amount of orange colour present in the lip of *L. Jongheana*, might have been expected to be more pronounced in the hybrid, were it not that the experience of raisers has already proved the instability of the yellow of one parent when crossed with forms having lilac and purple tints, the yellow being often suppressed in the progeny.

CYPRIPEDIUM MONTANUM.

A FLOWER of this pretty hardy *Cypripedium* is sent by Mrs. Edward Thatcher, The Manor House, Chew Magna, Somerset, who states that the plants now in bloom in her gardens were received from British Columbia, and that one specimen bears 13 blooms. The narrow sepals and petals are purplish-brown, and the lip white. It is nearest to the European yellow-lipped *C. Calceolus*, and well-flowered plants like Mrs. Thatcher's specimens are very pretty. The whole section thrive best in a cold, shady frame unheated by artificial means, as the plants are very impatient of excessive heat. In sheltered situations they may be grown in boggy nooks in the rock-garden in the open air. During the growing season they require an abundance of water.

The Week's Work.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Datura [Bruqmansia].—*D. suaveolens*, when thoroughly hardened off, makes a splendid subject for plunging in the borders. In a warm summer, the large, pure-white pendulous flowers are produced with wonderful profusion until checked by the approach of autumn frosts. Nothing is more conspicuous or beautiful than a well-grown standard specimen in full flower. Cuttings will root readily, but some little time is necessary for them to make good-sized standards. At the commencement of winter the growths of the previous summer may be pruned hard back, and the pots stood quite close together in a house from which frost is excluded; they must not be given much water. In May remove them out-of-doors into a sheltered position, where protection from frost may be provided, and they may be thoroughly hardened before plunging the pots. Once plunged, they may remain out-of-doors until the plants are disfigured by frost.

Summer bedding.—All bedding plants are now out-of-doors, and if they are well hardened, they are ready for planting whenever an opportunity occurs. There is plenty of material to select from nowadays for planting any kind of beds; at the same time, extreme care must be exercised in selecting the various plants and determining upon the combinations to be employed if artistic and bright effects are to be obtained. In gardens where a portion of the summer bedding is situated in close proximity to the mansion, the gardener will select the choicest plants suitable for the purpose, and endeavour to get a specially novel and charming effect. Locality and aspect must determine the class of plants that may be used with certainty of success, but in all cases those who have well-grown, properly-hardened plants will be most likely to get the best results. It is not only necessary that the colours of the flowers or leaves are such as to harmonise, but

the style of plant and the habit of growth must also be of such a character that they will associate one with another. In the modern system of summer bedding there may be wide differences in the designs and in the planting. The effect of standard plants is charming when well-grown specimens are used and a suitable groundwork is provided. The use of a few standard plants prevents any appearance of flatness or monotony.

Preparation of the ground.—This important operation is sometimes overlooked. The beds and borders should be deeply worked and a liberal quantity of rotted manure in most cases should be incorporated with the soil, not only to supply plant food, but to render the ground retentive of moisture. Borders which have been prepared in the proper manner will only require to be forked over and the surface made moderately firm and raked evenly. All spring-bedding plants at present in the flower-beds required for propagating must be lifted carefully and laid in until attention can be given them which should not be delayed a day longer than necessary. It is desirable to make every preparation before commencing to put out the summer plants so that when this operation commences it may be brought to a conclusion without any unnecessary delay. The level of the beds should be raised above that of the surrounding soil, as this adds greatly to the effect, and also provides additional space for a neat edging.

Planting.—Many standard plants succeed best when plunged in their pots, especially any which will be required again next season. All the plants should be made firm at the roots, and they should be uniform in height. Any that require staking should have stakes put to them at the time of planting. The plants should be given a good soaking with clear water on the same day as they are inserted, and afterwards frequent sprayings with a springe or rose-can in hot weather will keep the plants fresh during the time they are becoming re-established. Most of the plants intended for carpeting should be pegged down neatly as early as possible.

General work.—The Dutch hoe must be used frequently to destroy weeds. Plants require frequent attention in regard to tying, especially climbing plants. Any which are affected with aphids should be syringed late in the afternoon with an insecticide. Shrubs in pots which have been forced should be planted in the nursery or similar place where they may grow for a season or two before they are used again for forcing. The rock-garden should be hand-weeded by someone who has a good knowledge of Alpine plants, and many of the rock plants will require watering. Continue to plant bare spaces in the garden with bright-flowering plants.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Bardon Hill, Westwood, Yorkshire.

Begonia Gloire de Lorraine.—The earliest batch of young plants will now be ready for potting into their flowering pots, which should be selected from 5 to 7 inches in diameter according to the strength of each plant. A suitable compost is one consisting of good turfy loam, peat, and leaf-mould, using these materials in equal quantities. There must be added a quantity of manure from a spent Mushroom bed or some well-decayed sheep manure which has been dried and rubbed through a sieve, also a moderate quantity of charcoal and silver sand. The soil should not be made very firm in the pots, as all the varieties of *Gloire de Lorraine* appear to like a loose rooting medium. The chief points to observe are care in watering, the provision of considerable heat and atmospheric moisture, also shade from excessive sunshine. A little liquid manure can be given the plants in autumn. A neat, green stake should be placed firmly in the centre of each plant, and the growths should be lightly secured to the stake with a loop of thin Raffia tape. The pyramidal-shaped plants are most valuable for decorative purposes. It is desirable to damp the paths and bare spaces occasionally with farmyard manure, as it has the effect of preventing thrip. An occasional fumigation may be necessary.

Begonia Gloire de Sceaux.—The brilliant metallic-looking foliage of this handsome *Begonia* is something to be desired. Its usual season of flowering is in winter, and it is continued until March or even April. Young plants may easily be raised from cuttings inserted at

this season or by division of the stem; these latter should be placed into small pots filled with sandy compost, and the pots should be plunged in a gentle bottom heat. When they have formed roots they can be potted up singly and treated afterwards similarly to *Begonia Gloire de Lorraine*, but using less fire-heat.

Pot Roses.—Any varieties which have flowered should be placed on an ash base out-of-doors. They will need root waterings pretty frequently, so long as the plants remain in an active condition of growth. The plants should be exposed to the sunshine in order that the shoots may get thoroughly matured. The pots being now full of roots, an occasional top-dressing with some chemical fertiliser will be useful. In order to keep the plants perfectly free from aphides and red spider, they must be syringed occasionally with an insecticide. Climbing plants require constant attention. The weak growths and other undesirable shoots should be removed and the remaining shoots trained evenly over the space available. Such plants should be kept under proper control, otherwise the plants in the house will suffer from shade. Any climbing plants that grow in permanent borders will require a top-dressing and frequent applications of water during the next few months.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Cattleya house.—Plants of *Cattleya Warscewiczii* (gigas) now showing their flower-sheaths, will require to be kept fairly moist at the root to assist the plants while developing their flowers; they should be placed well up to the roof-glass in a shady part of the house. Those plants which fail to produce sheaths should also receive generous treatment, or they will not develop strong pseudo-bulbs. When the growths are fully completed, and the flower-spikes removed, gradually expose the plants to more air and sunshine, because the better the pseudo-bulbs are ripened, the better will the plants bloom next year. After the bulbs are completed, but little water need be afforded the plants. As soon as they commence to produce roots from their base, fresh potting material may be afforded. *C. Dowiana* and its variety *aurea*, having now started well into growth, should be placed at the warmer end of the house, and be carefully supplied with water until the flowers open, and when these fade, the plants should be treated as advised for *C. Warscewiczii*. *C. Luedemanniana* (speciosissima) may be repotted within a few weeks after the plants have flowered, and then be kept in a cooler and drier atmosphere during the resting period. *Lælia rubescens* (acuminata), *L. Gouldiana* and others, which are at rest, should be placed in a little more warmth than is afforded by the ordinary greenhouse, but with more air and less atmospheric moisture than are to be found in the Orchid houses; very little water being needed at the root to keep the pseudo-bulbs plump. *Oncidium ampliatum majus*, after blooming, should receive similar treatment. At this season there are numerous hybrid *Cattleyas* and *Lælias* which have passed out of flower, and that need a short period of rest, therefore let them be placed in a cool, airy part of the house, being careful not to induce the growths to start. This kind of treatment is applicable to *Lælia purpurata*, a species which is apt to start into growth almost immediately after it has flowered.

Intermediate house.—Plants of the summer-flowering *Platyclinis filiformis* are starting their new growths, which, when about half-way through their growing period, send out their thread-like flower-spikes, and from this time until the growths are made up, abundance of water is necessary at the root. Suspend the plants in a well-shaded part of the house, and in a position where the foliage can be conveniently sprayed over several times each day. Repotting should be deferred until after the flowers have faded. *P. glumacea* should be placed in a similar position, and plenty of water afforded it to assist the development of the new growths. *P. uncata*, although at rest, will need similar treatment as for *P. filiformis*.

Bletia.—Such deciduous plants as *Bletia hyacinthina*, *B. campanulata* and *B. verrucunda* which have completed their growth should be placed in a light position in a cool greenhouse, or cool frame.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Mulching.—Special attention should be given to mulching during the next few weeks, in order that evaporation may be hindered and less labour required in watering. Such attention is particularly needed in regard to trees growing against walls, or which have been budded or grafted on shallow-rooting stocks, because the roots being near to the surface they are more likely to suffer in case of drought. In cases where the soil is of a heavy nature, it may be desirable to defer the mulching until the soil has become warmed by a period of sunny weather. Mulching requires to be carried out with considerable care, and the same materials are not suitable for all trees. Any which have been newly-planted, or that have failed to set crops this season should only be mulched with light, strawy litter, as rich manure would have an injurious effect upon them, tending to the production of unfruitful wood. Trees in light, porous soils, on the contrary, and bearing good crops of fruit, will be benefited by a liberal dressing of partially-decayed stable manure, and soakings of clear water should be given directly after the mulching has been applied. Future waterings may consist of clear water and liquid manure from the farm-yard, applied alternately. In commencing this operation, the first thing to be done is to remove all the weeds, then to prick up the surface soil by means of a garden fork. If the weather during summer is hot and dry, it may be necessary to repeat the mulching in some, and possibly in all cases.

The Codlin moth (*Carpocapsa pomonella*).—This moth is on the wing late in spring; the eggs are deposited in the calyx of the young fruit. After about a week or 10 days the maggots appear, and they pierce the young fruits, boring to the centre. There they feed and cause the fruits to fall to the ground. Preventive measures should be taken directly the flowers have faded, and it should be remembered in this connection that tom-tits and the little fly-catchers do much service in devouring the caterpillars before they have bored into the fruit. The best winter remedy is to spray the trees with the caustic alkali wash. Later, when the blossoms have fallen from the trees, a spraying should be carried out with arsenate of lead. Fallen fruits should be picked up and destroyed by burning, for if allowed to lie on the ground, the caterpillars will escape from them and conceal themselves in any loose material that may be near, and eventually another generation of moths will follow.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, G.C.B., Moulton Paddocks, Newmarket.

Melons.—During hot, sunny weather these plants need extra attention in regard to watering and feeding. If they once suffer from drought, a check is caused and the fruits are apt to split. Apply a top-dressing of fresh soil as often as the roots appear on the surface of the border. Plants now swelling their fruits should be given liberal supplies of liquid manure, but such manure water should be discontinued directly the fruits show signs of ripening. Admit air freely during fine weather through the top ventilators early in the day in order to prevent scorching of the foliage. Syringing overhead should cease when the fruits have commenced to swell freely, but atmospheric moisture must still be promoted by syringing the paths and shelves, and other surfaces in the house, several times each day. The atmospheric temperature at night should range from 70° to 75°, and the house should be closed early in the afternoon in order to utilise the sun-heat, so that the temperature may rise to 95°, or even 100°. Examine the plants once or twice each week and remove any lateral growths before it is necessary to cut a large quantity away at one time, which invariably causes a check to the plants. Pinch the laterals generally to one leaf, but where there is sufficient room on the trellis above the fruit, the laterals may be allowed a little more extension than those on the lower part of the plant. This will encourage a flow of sap to the fruits and tend to increase root action.

Melons in frames.—The supply of Melons during summer can easily be augmented by growing a batch of plants in frames. Brick pits

deep enough to contain a good bed of fermenting material are the most suitable structures. The hot-bed should be composed of leaves and fresh manure, using two parts leaves to one part of manure. These materials should be placed in a heap which should be turned over a few times before they are used to form a bed. When the bed has been formed and trodden firmly the surface should not be less than 15 inches from the glass, otherwise the foliage may reach the glass and become scorched. The Melon plants should be placed on mounds composed of turfy loam, with a considerable proportion of lime rubble mixed with it. Two plants may be put under each light, one to grow toward the back of the frame and the other towards the front. If proper attention is given to watering and top-dressing the border, and regulating the growth, each plant may be expected to produce two or three fruits. The fruits should be raised toward the light by placing inverted pots under them when they have attained to a fair size. Endeavour to keep the temperature regular, cover the frames with mats on cold nights, and ventilate carefully during sunny days.

Vines in pots.—The Grapes on the pot vines being now fully ripe, more ventilation should be employed and a drier atmosphere maintained. Apply just sufficient water to the roots to keep the foliage from flagging. As soon as the crop has been gathered, the vines may be removed out-of-doors and the house utilised for some other crop.

Early vines in borders.—Vines on which the fruit is now colouring will also require more air and a drier atmosphere. The atmospheric temperature at night should range from 65° to 70°, allowing a little ventilation at the top of the house. Air may be admitted both by top and bottom ventilators during day-time when the weather is favourable. Give attention to the border, remembering that shanking of the berries is often caused by extremes of drought and wet. Outside borders may be mulched with horse-droppings to encourage the surface roots and prevent any ill-effects from the sun and wind.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Asparagus.—Beds in full bearing will be benefited by applications of weak liquid manure, and, during showery weather, light dressing of guano. Examine the beds each day and cut any shoots that are ready; if the supply is greater than the demand, the surplus heads may be kept fresh for a few days by standing the cut ends on wet sand in a dark, cool place. The beds must be kept free from weeds by hand-weeding.

French Beans.—The earliest plants will now be pushing through the ground, and some protection must be afforded them during frost. Continue to make sowings of French Beans fortnightly, on rich land, to furnish a good supply of young pods over a long period.

Cucumbers.—Cucumber plants, either in pits or houses, should be given an abundance of water at the roots and a little artificial manure. If the rooting space is limited in extent, frequent light top-dressing of loam and rotted manure in equal quantities should be applied. Let the atmosphere be kept moist by frequently syringing the walls and borders. Much air is not needed at any time, but only just sufficient to keep the atmosphere of the house in a fresh condition. Stop and regulate the shoots, frequently removing all surplus shoots, also any leaves that are becoming exhausted. Be careful to avoid overcropping. Sow another batch of seeds singly in small pots for raising plants to fruit in August and September.

Parsley.—The main winter crop of Parsley should now be sown in rows 18 inches apart. A border facing to the west is best for this sowing, as such a position is protected from the east winds. Another sowing may be made a month later in a sheltered portion of the garden where it will be possible to protect the Parsley by the use of boxes, frames, or spare lights during cold weather in winter. As soon as these latter plants are large enough they should be cut close to the ground level. They will then make short, sturdy growths before the commencement of winter.

Endive.—Seeds of Endive should be sown without delay on a north border in light, rich soil. Sow the seeds in drills 15 inches apart, and thin the plants to distances of 1 foot apart. The

seedlings which are removed in the thinning process may be transplanted on a north border. These will come into use in September, a fortnight later than those which remain in the soil. The best way to blanch Endive in summer is to tie the leaves together when they are perfectly dry and cool.

Lettuce.—Lettuce seeds should be sown each fortnight on a north border in rich, but not excessively light, soil. Sow the seeds in drills 15 inches apart and 1 inch deep. If the ground is dry a good watering should be given on the day previous to sowing the seeds. Sow thinly and shade the ground in very hot weather until the plants are well above the soil. Mammoth White Cos, Continuity, and All-the-Year-Round are reliable sorts for summer sowing.

Broad Beans.—These should be topped as soon as sufficient flowers have set, and, if black fly is troublesome, the plants may be syringed with soft soap and water. If fresh sowings are desired, the seeds should be sown in trenches prepared as for late Peas, so that liberal supplies of water can be given in hot weather. Broad Windsor is the best for a late sowing.

Peas.—Small sowings of late Peas may be made every week from now until the middle of June in trenches into which a quantity of farm-yard manure has been dug. The plants must not be allowed to suffer from drought, or mildew will be sure to put in appearance. Apply a mulch of farmyard manure to the ground between the rows.

Radishes and Mustard and Cress.—Make a sowing each week of Radishes, selecting a site where the sun will not have dried the ground. Mustard and Cress may be sown in a similar situation, covering the seeds with sheets of paper until they have germinated.

THE APIARY.

By CHLORIS.

Controlling swarming.—Although some beekeepers desire to increase their stocks, many would be glad if they could find some method of preventing their bees swarming. Some are of the opinion that swarming is caused by there being more nurse bees than there is brood to nurse. When the brood chamber is filled with brood, the bees fill the cells with honey as the young bees leave the cells, consequently there is no work for the nurse bees. If colonies could be kept supplied with plenty of cell space, then swarming could certainly be prevented. Many beekeepers extract honey from the brood frames, whilst others add an empty frame. Another and easier method is as follows: When a colony is making preparations for swarming, which can be known by the building of queen cells, then in less than a week, probably only a day or two, swarming will take place if the weather is favourable. The beekeeper must prepare another hive, place it upon the old stand, and, taking the frames singly, shake off the adhering bees into the new hive, taking care that the queen is amongst them. All supers should be removed from the old hive and placed in the new one. By this means, the beekeeper makes certain that the bees will not be lost in swarming. Sometimes the bees will leave their new house, but this may be prevented by placing a frame of hatching brood in the centre of the hive, for bees rarely desert their brood. Before disturbing the colony rap the sides of the hive well to thoroughly frighten the bees, as these latter will then gorge themselves with honey. This is a very important procedure. If it is desired to increase the stock the old hive should be placed on a new stand, but if no increase is wished the old hive should be placed near to the new one, to receive those bees that were abroad at the time of transference. In a fortnight all the bees may be shaken from the frames into the new stock and the old hive removed. To prevent after swarming, when a colony has swarmed naturally, place the hive containing the swarm on the old stand, and allow the parent hive to remain by its side, with the entrance turned slightly aside, and on the seventh day, whilst the bees are very busy afield, remove the old colony to a new stand, and the flying bees will join the swarm, thus strengthening it, and the loss to the other stock will be so great that there will be no disposition to swarm again. Should such after swarming take place, then, while the bees are clustering, cut out all the queen cells, and the bees may then be returned to the hive.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 7—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Prof. Henslow on "Survivals among Plants of the Past.") Scottish Hort. Assoc. meet. British Gard. Assoc. Ex. Council meet.

THURSDAY, JUNE 9—

London Branch of B.G.A. Excursion.

SATURDAY, JUNE 11—

R.H.S. Gardens Club Annual Re-union at Wisley.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—58.2°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 1 (6 p.m.): Max. 65°; Min. 51°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 2 (10 a.m.): Bar. 29.8; Temp. 60°; Weather—Raining.

PROVINCES.—Wednesday, June 1: Max. 62° Chelmsford; Min. 50° Scotland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Liliums and Hardy Bulbs, Bedding Plants, &c., at 1; Palms, Bays, Ferns, Pot Roses, &c., at 3; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

1,200 Imported Cattleya Schrödera, Established Orchids, &c., at 67 & 68, Cheapside, E.C., by Protheroe and Morris, at 12.45.

Artificial Aids to Forcing.

Our readers are familiar with the accounts which we have given from time to time of attempts to apply various artificial aids to the forcing of plants. The objects which the cultivator has in view in thus interfering with the normal course of development of the plant are either to cause it to flower earlier than it would do under more natural circumstances or to reduce the forcing period and the cost of production. All the various methods employed, including etherisation, cold storage, and treatment with hot water, start from the well-recognized premiss that plants must have experienced a check before they can be forced successfully. The object, therefore, of the cultivator who is engaged in forcing plants is to discover means whereby the plant, instead of being subjected to the natural check or arrest of development by frost, is checked in a similar manner by artificial means.

Of the means which have been employed, with greater or less success, the chief are, as we have mentioned, etherisation, subjection to low temperature, and treatment with hot water.

Johanssen's etherisation experiments are now so well known that we only mention them in order to call attention to the admirable summary published in the Preliminary Reports

of the Brussels International Exhibition, of the results of the application of this method on a large scale. According to the report by M. Charles Chevalier, the chief merits of the method are, that plants which are amenable to the treatment may be caused by etherisation to flower two months earlier than is otherwise possible, that the time required for the subsequent forcing is shorter, and, hence, the treatment with ether results in an economy of fuel and labour, and that the flowers are superior to those borne by unetherised plants.

As to the actual effect produced by ether, our knowledge is still incomplete. The prevalent opinion, however, is that it causes a loss of water from the tissues, and thus acts by drying the plant. In support of this view, it is pointed out that the effect of ether is the less the more the plants treated have been exposed previously to frosts. Whence it follows that, if etherisation is to be practised with success, it must be applied early, for example, during October or November.

The most important points to bear in mind in the application of the anæsthetic are that the temperature must not be too low—about 30°-32° F.—and that the plants must be exposed for a fairly long time to the action of the vapour. In the table given by M. Chevalier 72 hours is cited as a fair time if the preceding season has been wet, and 60 hours if it has been dry. It may be that certain failures which have been reported in this country are traceable to the exposure having been of too short duration. Other anæsthetics which have proved serviceable substitutes for ether are chloroform, which has the advantage of being less inflammable, and carbon-tetrachloride.

The origin of the use of artificially-obtained low temperatures for forcing is due to the initiative of the cultivators of "cut flowers" at Aalsmeer (Holland). In his interesting report on the Influence of Artificial Cold on the Forcing of Plants, M. P. de Vries, State Professor of Horticulture at Aalsmeer, describes the experiments made in 1907 on such subjects as *Syringa*, *Prunus triloba*, *Deutzia Lemoinei* and *D. gracilis*; *Magnolia* and *Convallaria*. Large numbers of these, as well as other plants, were placed in a refrigerating chamber on October 31 and maintained for a week at a temperature of from 3°-4° above freezing point.

In this case the drying effect of the low temperature became evident, for the plants—which were packed very closely—gave off so much water vapour as to form a coating of snow on the pipes in the refrigerating chamber, where, evidently, the temperature was lower by several degrees than in the middle of the room.

Though the original experiments were not a complete success, they were followed by others, in which it was demonstrated that, for *Syringa*, *Spiræa* and *Convallaria*, the method was capable of yielding excellent results. The advocates of the yet more recent hot-water method claim that it is much easier of application and more certain in results than the ether method, which required an airtight chamber.

Among the plants which have responded to the treatment are Lilac, *Forsythia suspensa*, and many other species of less horticultural importance. The plants to be treated are plunged in tepid water, which is kept as nearly

as possible at temperatures ranging from 85°-96°. The roots are not submerged, but the rest of the plant is maintained under the water for periods varying from 6 to 12 hours. Though the several methods cannot yet be said to have passed altogether beyond the experimental stage, yet it is evident that, for certain plants, they provide means of securing precocious crops and of allowing the cultivator to determine with no small amount of precision the times of their flowering. For it should be noted in conclusion that plants subjected to ether vapour or to hot water need not be forced immediately. They may be left exposed to the weather, and be taken into the forcing house as occasion requires.

THE SELBORNE SOCIETY.—The annual meeting of the Selborne Society will be held in the Theatre of the Civil Service Commission, Burlington Gardens, on Friday, June 17. After the business has been transacted, an address will be delivered by Mr. JAMES BUCKLAND, on the traffic in feathers and the need for legislation. Mr. BUCKLAND was the promoter of the Plumage Bill which Lord AVEBURY recently introduced into, and passed through the House of Lords. It will be remembered that during last year the Selborne Society acquired new offices at 42, Bloomsbury Square, in order to form a home for its library, and to provide reading and committee rooms.

"FRENCH" GARDEN AT WARLEY PARK, BIRMINGHAM.—We are informed that the French garden exhibited by Messrs. SUTTON & SONS in Warley Park, Birmingham, and described in these columns last week, was inspected by 140,000 visitors.

LEONARDSLEE GARDENS.—We stated on p. 333 that Sir EDMUND LODER's beautiful gardens at Leonardslee, near Horsham, were to be opened to the public for the benefit of the West Sussex Nursing Association. We are now informed that the number of visitors who paid for admission was 550, and that a sum approaching £70 will be handed over to the institution. Leonardslee is not particularly accessible, owing to its distance from the railway station, therefore the number of visitors is surprising, notwithstanding that many motorcars were brought into requisition. The gardens were seen at their best, and Mr. W. A. COOK, the head gardener, gave the visitors all the information possible respecting the magnificent Rhododendrons and other plants.

MADRESFIELD COURT GARDENS.—We are informed that the proceeds obtained from the opening of Madresfield Court gardens on Whit-Monday for public inspection will not be given to the Royal Gardeners' Orphan Fund, as stated last week, but to the Worcester Auxiliary of the Gardeners' Royal Benevolent Institution.

FLOWER GARDENING FOR CHILDREN.—The North British Academy of Arts (Newcastle-on-Tyne) recently formulated a scheme for encouraging the children in pot-plant and window-box gardening, prizes being awarded for the best. An influential committee was formed, and so successful have been their efforts that on Tyneside alone more than 2,500 children have been provided with the necessary seed by the academy. The sum of 50 guineas has been allocated for prizes in the hope that not only will the homes be beautified, but a love of nature inculcated which will have lasting effects in the minds of the children.

Kew Guild.—Instead of the customary dinner at the Holborn Restaurant, the annual re-union this year took place at the Gymnasium, Kew, on May 23. About 60 members were present, under the chairmanship of the curator and president, Mr. W. WATSON. The annual report showed that the total membership is 273. Owing to the alteration in the date of publication of the *Journal* the expenditure was only 16s. 7d. The number to be issued in June will serve for the period between December, 1908, and the date of the present meeting. As there is now a reserve fund sufficient to meet all liabilities, and the interest from this, together with the return from advertisements is sufficient to maintain the Guild were there no other sources of income, it is felt that the annual balance should be placed at the disposal of the committee, to be used at their discretion in furthering the objects of the Guild. The committee invite members to inform the secretary should they be in need of employment, or if they know of situations which Kew-trained men might fill.

INTENSIVE CULTIVATION AT REGENT'S PARK.

—The directors of the *Daily Mail* newspaper have made arrangements to hold an exhibition relating to intensive cultivation, small holdings, poultry farming, bee-keeping, fruit-growing and bottling, and subjects of a similar character, at the Royal Botanic Gardens, Regent's Park, London, from July 18 to August 1. It is intended to make the exhibition as comprehensive as possible. In addition to the "French" garden, which will be shown in actual operation, sections will be devoted to poultry farming and the other industries already mentioned. Space will also be available for practical displays of appropriate undertakings furthering the "back-to-the-land" movement. In the exhibition grounds 18 picturesque houses of an early English period will be erected for occupation by exhibitors and a limited amount of space will be reserved for appropriate exhibits in various other positions in the gardens. Particulars may be obtained from the *Daily Mail* Office.

acres, another to the commercial estate of Sir JOSSLYN GORE-BOOTH, Bart., near Sligo, and a third to the estate of Col. NUGENT T. EVERARD, J.P., D.L., at Navan. Co-operative creameries, bacon factories and a poultry-fattening station will also be inspected, while among the extraordinary industries to be visited are Tobacco and Hemp culture, bulb farming, cyder making, fruit and vegetable drying, and a school of needlework. The schemes of instruction and agricultural institutions of the Department of Agriculture, the work of the Congested Districts Board, and the Irish Agricultural Organisation Society will also be studied. Killarney and the Vale of Avoca will form the subject of a week-end visit. The party will leave Paddington Station at 8.45 on Thursday morning, July 14, for Cork, returning on Tuesday morning, July 26, reaching Paddington at 9.55 p.m. The members will travel third class by train and first-class saloon on board the steamboat. Applications to join the party (which will be limited to 40 persons) must be sent to the Education Committee not later than July 1.

BARON SCHRÖDER AND THE GARDENING CHARITIES.

—It will be seen from our report of the proceedings at the annual festival dinner of the Royal Gardeners' Orphan Fund that Mr. EDWARD SHERWOOD, the hon. treasurer, announced that by the terms of the will of the late Baron SCHRÖDER the fund would benefit to the extent of £500. We learn also that Baron SCHRÖDER bequeathed a sum of £1,000 to the Gardeners' Royal Benevolent Institution. Our readers who have been familiar with the numerous instances of Baron SCHRÖDER's liberality during his life will be all the more grateful that he has remembered the afflicted and poor at his death. These gifts will still further cause the name of Baron SCHRÖDER to be cherished in the memories of all associated with gardening.

"THE COUNTRY GENTLEMEN'S ESTATE BOOK."

—The *Year Book of the Country Gentlemen's Association* for 1910, edited and compiled by the managing director, Mr. WILLIAM BROOM-HALL, is a bulky volume of over 500 pages, admirably-printed and illustrated. The members of the association certainly cannot complain of lack of variety in its contents, as the subjects cover estate work and management, farming, horticulture, woods and forests, sports and pastimes, and miscellaneous topics, while a mere list of the articles under these several divisions would fill a column of this paper, if a line were given to each. Under "Legislation in 1909," with which the volume opens, there are excellent descriptions of the Town Planning and Development and Road Improvement Funds Acts. Among the subjects under estate work and management various writers, including well-known authorities, deal with concrete house construction, country house lighting by electricity, a practical mono-railway, the reclamation and utilisation of peat lands, municipal water supplies and the storing of water, land drainage, and many other topics. To farming a still more numerous set of articles is devoted, including those on such subjects as associations for the creation of small holdings, functions of a department of agriculture, goat-farming, and new fertilisers. In the same division Sir WALTER GILBEY writes suggestively on "Horses for the Army," and Mr. C. J. DAVIES on "Some Indications of Milk Producing," while Mr. CECIL HOOPER deals with "Small Holdings in Kent." Among the most interesting horticultural articles are "Fruit Culture on Farms," by "EMBER;" "The Training of Gardeners," by G.H.H.; and an unsigned paper on "Narcissus Cultivation." It must be added that some of the articles on important subjects are too short to afford much information.



FIG. 163.—CYPRIPEDIUM PUBESCENS, A HARDY SPECIES, AS EXHIBITED BY MESSRS. BAKERS AT THE TEMPLE SHOW.

The committee also desire to be informed of any case in which assistance, pecuniary or otherwise, might be afforded to a Kewite. After a very interesting meeting, most of the members spent a pleasant evening at the Kew Gardens Hotel.

THE RECENT TEMPLE SHOW.—It is satisfactory to learn that the receipts for admission to this show exceeded those of last year, although, as we pointed out in our last issue, there was less crowding than usual. Large numbers of Fellows took advantage of the Wednesday morning, when the show was reserved for their inspection, and this relieved the pressure on the Tuesday afternoon. As supplementary to our report published last week, we may mention the fine groups of garden flowers shown by Messrs. BAKERS, Wolverhampton, and Messrs. KELWAY & SON, Langport, Somerset. The former firm showed a rock-garden exhibit planted with choice Alpine plants. There were fine clumps of hardy terrestrial Orchids, and we now illustrate *Cypripedium pubescens* in fig. 163, and *C. spectabile* in fig. 164. Messrs. KELWAY'S *Pyrethrums* and *Pæonies* were greatly admired.

PROPOSED MEMORIAL TO MR. JOHN SPEIR.

A proposal to commemorate the services of Mr. JOHN SPEIR, Newton, near Glasgow, by some memorial, such as a scholarship, is likely to interest many horticulturists, as well as those concerned in agriculture. Besides his many activities as a farmer, Mr. SPEIR was an able market-gardener, and, in addition to other crops, grew large quantities of *Narcissi* and other flowers for the Glasgow markets. The movement, we are informed, is likely to be carried to a successful issue.

ESSEX FARMERS TO VISIT IRELAND.

—The Essex Education Committee has arranged for a party of agriculturists and horticulturists to visit Ireland in July. The members will be afforded opportunities of seeing the organisation and practice of agriculture and horticulture, on farms and holdings varying in size from 4 up to 350 acres. The sparsely-populated districts of the west, the Potato-growing soils of the south, and some of the more intensely cultivated areas of the north will be visited. One day will be devoted to an inspection of the Loughgall fruit district of 3,000

THE VAN HOUTTE CENTENARY.—The arrangements for the centenary celebrations on Sunday, June 26, at Gendbrugge, are nearing completion. The procession promises to be a very impressive spectacle, and on all sides the committee is receiving sympathetic help. An immense crowd is expected to gather at Gendbrugge, and measures are being taken to prevent accidents. On the first day of the festivities the proceedings will be terminated by a great banquet at the Casino of the Société Royale d'Agriculture et de Botanique. The banquet will be attended by any admirers of LOUIS VAN HOUTTE, whether they are horticulturists or not. Since our last announcement was made, a further sum of nearly £40 has been received towards the general fund.

ROSA GIGANTEA IN FLOWER AT KEW.—Rosarians will be interested to know that the magnificent plant of *Rosa gigantea*, in the Temperate House, Royal Gardens, Kew, has developed during the present week two of its rare and beautiful flowers. The Kew plant has a splendid stem, 7½ inches in circumference, whilst its branches extend a considerable distance along the top of the high building. This is the first occasion that the specimen at Kew has borne flowers, although it has been planted very many years. It will be remembered that, on February 28, 1905, flowers of *Rosa gigantea* were exhibited from the Duke of NORTHUMBERLAND's garden, Albury Park, Surrey, at a meeting of the Royal Horticultural Society. So extraordinary was this exhibit considered that the Floral Committee made it the award of a Botanical Certificate, and also a Cultural Commendation. Previous to this exhibit from Albury Park, we do not know that the species has flowered in England, except in the nurseries of Messrs. F. CANT & Co., Colchester. A curious point about it is that, whilst in temperate houses like that at Kew the plant will grow with the greatest freedom, it seems incapable of blooming freely in this country. Yet the species flowers profusely on the Riviera. In our issue for March 4, 1905, a full-page illustration of this Rose appeared, together with some particulars respecting its native habitats and its behaviour in the gardens at the Château Eléonore at Cannes.

DELPHINIUM SULPHUREUM (D. ZALIZ).—This fine species of *Delphinium*, with its pale yellow flowers so distinct from those of its allies, is less frequently grown than it should be, mainly perhaps on account of inherent difficulties connected with its culture. It requires a dry, open situation and freedom from competition with weeds or other plants. In the ordinary crowded herbaceous border it rarely succeeds. Some useful hints on the management of the plant are given by M. ROLL in a recent issue of *Die Gartenwelt*. While the seeds of many of the common types of *Delphinium* germinate readily when sown in spring, those of *D. sulphureum*, if sown at this time of year, usually remain a year in the ground before coming up, or they die altogether. If, however, they are sown out-of-doors at the natural season, namely, in autumn, as soon as ripe, vigorous young plants appear in the succeeding spring months. Seedlings which are disturbed much in transplanting make poor, stunted specimens, the best results being obtained from plants which are allowed to grow where the seed is sown. Older, well-established plants exhibit similar dislike to disturbance, and can only be moved into new situations with success during late autumn when completely at rest or in early Spring before there are any signs of new shoots from the root-stocks. Nevertheless, in spite of these peculiarities, the species is quite hardy, and on account of its handsome appearance deserves a place in the open borders of all gardens where tall, stately plants are needed.

WARLEY PLACE GARDENS.—Many readers will be glad to know that Miss WILLMOTT's charming gardens at Warley Place, Great Warley, Essex, will be open for public inspection on Thursday, June 9, from 2 to 6 p.m. One shilling will be charged for admission, and the proceeds will be devoted to local charities. We have reason to know that the Alpine and herbaceous plants are particularly interesting at the present time. A few copies of the book, *Warley Gardens*, will be on sale during the afternoon, and the profits on these will also be given to the charities.

PUBLICATIONS RECEIVED.—*Tourist Guide to the Continent*, edited by Percy Lindley. (London: Great Eastern Railway Co.) Price 6d.—*"One and All" Garden Books*, edited by E. O. Greening. *Small Gardens*, by T. W. Sanders. (London: Agricultural and Horticultural Association, Ltd.) Price 1d.—*Insects and Mildew on Garden Plants and Trees and their Destruction*, by E. A. White, Ltd., Beltring, Paddock Wood, Kent.

ter plant has proved quite hardy in Devon. *Veronica Lyallii* is a charming little shrub, and is a delightful sight when covered with its pale blossoms, but it often proves difficult to keep in health. *Geranium grandiflorum* expanded the first of its large, purple blossoms in April, and early in May *Calceolaria violacea* perfected the earliest of its helmet-shaped flowers, which are beautiful with their yellow throat and purple spots. One of the loveliest things in the garden early in March was a shrub of the inappropriately-named *Corylopsis pauciflora*, every spray of which was studded with pale-yellow, drooping blossoms. A little bush of *Diosma ericoides* is now a beautiful sight, being literally covered with tiny, white blooms, and the precious *Pæonia Wittmanniana*, one of the hand-somest of the *Pæonies*, has produced its single, pale-yellow blossoms with their striking eyes. *P. Whitleyi*, almost as beautiful, is not yet in flower. *Erodium pelargonifolium* commenced its floral display at the close of February, and will probably bloom without a rest until December, and *Polygonum capitatum*, another plant with a very extended blooming season, produced the first of its rose-pink flower-heads in March. *Iris*



FIG. 164.—*CYPRIPEDIUM SPECTABILE*, A HARDY SPECIES, AS EXHIBITED BY MESSRS. BAKERS AT THE TEMPLE SHOW.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

BERBERIS STENOPHYLLA.—The particulars given of this plant by the Hon. Vicary Gibbs (p. 345) are very interesting, and the specimen mentioned is doubtless one of the finest in the country. There is a very good plant of *B. stenophylla* growing in the pleasure grounds of Lilford Hall, which I noted recently. Mr. Wilson, the head gardener, gave me the following particulars of it:—Height 13 feet, circumference 93 feet. It was planted in 1867 or 1868 from a small pot. This plant was the finest specimen of a *Berberis* I have seen. T. H. Stader.

SPRING FLOWERS IN THE SOUTH-WEST.—As supplementary to the article published in last week's issue, the following notes may be interesting. A large colony of *Ranunculus Nyssanus* made a pretty picture with its countless, bright-yellow, polished blossoms, and the handsome *R. cortusæfolius* from Tenerife carried its large, glistening, golden flowers on tall stems. This lat-

etosa has borne its purple blossoms, *Arenaria baltica* has spread a network of green studded with innumerable, minute flowers over damp rocks, and *A. montana* droops from a ledge in a cataract of white blossom. *Acacia armata* and *A. cordifolia* have flowered well, and the Australian *Candollea tetrandra* against a north-west wall is now bearing its yellow flowers freely. The white *Camassia Leichtlinii* and the pale-blue *C. Cusickii* have made a fine show, and are backed by great clumps of *Libertia formosa* just coming into bloom. *Homeria collina* has made a pretty picture with dozens of its delicate, orange-buff flowers, and the charming Daisy "Alice," with hundreds of quilled, salmon-pink blossoms, has been much appreciated. The Woodruff, in a shady corner, is a veil of scented white. Wyndham Fitzherbert.

PROSPECTIVE FRUIT CROPS.—The fruit tree bloom this season was magnificent, and gave hope of a grand season, but sharp frosts and a long spell of low temperatures and sunless skies have dispelled all those high anticipations. There is too much reason to fear that, so far from the crops of any tree or bush fruit being extra good,

they will be very light. Even Apples do not seem to be setting at all freely, and there may yet be great natural thinning. That able fruitist and keen observer, the late Mr. A. F. Barron, always looked with much distrust on great bloom seasons. His view was that such an excessive bloom weakened the trees, especially in pollen production. How far that opinion may have been right, other fruit-growers can judge for themselves, but certainly it is not common for extra-free displays of bloom to be succeeded by good fruit crops. Another factor has this season to be taken into account. We had last year a cold, wet season, and the maturation of the wood and buds on trees was by no means so good as is the case when the summers are warm and dry. The point is, how far, in estimating the causes for a poor fruit crop, should the effects of last season be taken into account? A. D.

The notes by *Southern Grower* (see pp. 227 and 309) are very interesting. In this locality the hardy fruit crop, excepting Apples, points to being up to the average. Orchard trees in the case of Apples are loaded with blossom, while trained trees are almost barren. I do not remember ever seeing such a small amount of bloom on garden Apple trees. I am convinced that severe pruning and pinching of fruit trees is satisfactory only for a time; after trees reach a certain age it is not to be recommended. In several gardens I have visited the trained Apples have very little bloom, whilst cottagers' trees which are seldom or never pruned, are wreathed with blossom. Last season our Apple trees bore heavy crops, but so did the trees that are full of bloom again this year. The trees are very clean so far, and small fruits are looking well. J. S. Higgins, *Rug Gardens, Corwen, N. Wales.*

COLOUR IN APPLE BLOSSOM.—Referring to A. D.'s interesting remarks on the above subject (see p. 345), there is, in my opinion, no more showy, rich-tinted-flowered variety than the old Catshead. I am writing in the belief that this is the correct name of the variety, an old tree of which I had in my garden near Ilford. I say this because it is difficult to fix the names of not-too-well-known, older varieties. I made all inquiries concerning it, and the late Dr. Hogg thought there could be no doubt the name Catshead was the correct one. Its individual blooms were of immense size, and the trusses large, added to which the fruit, which is large and oblong, is yellow, grey tinted, with a bright red cheek, thus adding another coloured-fruited variety to Baumann's Reinette. The tree is a large and vigorous one and free fruiting, the fruit soft and sweetish. William Earley.

APPLE LANE'S PRINCE ALBERT.—Everything points to this variety bearing a very heavy crop this year. The crop was light in 1909, but this failure was partly due to our early spraying. Late lime spraying this season, just as the buds were breaking, has proved successful, and a most beautiful sight now is the fine bloom. Lane's Prince Albert is the most useful Apple grown here; but it is difficult to get the trees to make sufficient growth, especially in their young stage. Stephen Castle, May 30.

LAUREL LEAVES AS AN INSECTICIDE (see p. 282).—I may mention that, some few years since, I tried decoctions of the foliage of several subjects for destroying insect pests on plants both under glass and out-of-doors. Amongst them were Laurel leaves. We put a quantity into a 6-gallon pan, filled it with rain-water, and hung it over an open fire, allowing the water to boil for some time. We both dipped plants therein, when cold, and syringed others with it. It seemed to kill green fly and thrips, but was not effectual with mealy bug or scale. I had an impression at the time that decoctions of Laurel leaves, Elder shoots, or Walnut leaves had the effect of making the foliage of all plants, including Orchids, distasteful to insects generally. Nowadays, when there is choice of so many specialised insecticides, it is questionable whether it is worth while going back to the home-made "simples." I got my first idea of trying them in the 'seventies, after seeing a very fine lot of specimen Cattleyas, Lælias, and Dendrobiums growing at Burton Constable, near Bedale. The gardener, whose name I forget at the moment, had grown them on from small plants purchased

by his employer, Mr. MacLaren, from time to time. In reply to my query as to hints bearing upon his evident cultural success, he said that he thought much depended on the use of bruised shoots of Elder being put into the open tanks of rain-water once a week during the summer months. It was thus applied in watering, as well as for syringing. A boy was sent once a week to an adjoining plantation to cut Elder shoots, and tie them into as many bundles as there were tanks. I have adopted the plan myself, on and off, for years. All this may sound very unscientific nowadays, but these are the facts. Not long ago, I was talking to Mr. S. Marshall, late manager for Messrs. J. Backhouse & Son, who purchased the collection of Orchids and sold most of them for that firm. He said that the collection included some of the best specimen Cattleyas and Lælias to be found in this country at that time. H. J. C.

LITHOSPERMUM PROSTRATUM "HEAVENLY BLUE."—Cultivators have been disappointed so often in the quality of new varieties of old plants that it becomes almost a duty to proclaim the merits of those that fulfil the terms of the prospectus. The above-mentioned gromwell does so most thoroughly; and, although he is hard to please who is not satisfied with the standard type, with its profusion of gentian-blue flowers, "Heavenly Blue" is even more charming—a perfect sky-blue. Moreover, it is of most generous habit; a couple of plants which I obtained last winter, having made vigorous growth, are now flowering profusely. The beauty of flowers may be enhanced or marred by juxtaposition. This gromwell contrasts well with *Aethionema grandiflora* (pink) and *Cheiranthus alpinus* (lemon-yellow). Unlike these, however, and unlike most of its own genus, *L. prostratum* has an intense horror of lime or chalk. Herbert Maxwell.

A CHAFFINCH'S NEST.—Referring to the note on p. 345, the following facts may be of interest. Last spring a thrush built a nest in a Laurel here, which had only recently been transplanted. Before the nest was finished the tree had to be set upright because of wind. But the thrush stuck to her nest, and soon there were eggs, which were stolen by someone. Later, we chanced to look into the nest, and to our surprise discovered that a chaffinch had commenced building inside the old structure. Not in the centre, but utilising one side of the old nest as part of the outside of its own, she finished off in three parts of a circle. All around three parts of the chaffinch's nest and the inside lining were typical of the handsome nest this bird constructs. In due time eggs were deposited; but this nest, too, was stolen. We would not have minded so much if the two nests had been taken away, for they were interesting, but it was annoying to find that the chaffinch's nest was ruthlessly torn away from its remarkable setting. A. Piper, *Uckfield.*

SOCIETIES.

BRITISH GARDENERS' ASSOCIATION. (SIXTH ANNUAL MEETING.)

MAY 25.—The sixth annual meeting was held at Carr's, Strand, on the above date. Mr. John H. Witty, vice-chairman of the Executive Council, in the chair. The minutes of the last annual general meeting having been read and confirmed, Mr. Hawes moved a vote of sympathy and condolence with the King and Royal Family on the death of his late Majesty King Edward VII. The vote was passed in silence, with the members upstanding.

In moving the adoption of the annual report, the chairman referred to the sure and steady progress that had been made by the association. There were now about 1,900 gardeners who had joined the B.G.A., and there were signs of quicker progress during the past year. The monthly *Journal* of the association was well edited by the secretary and published with regularity. It was doing excellent work in spreading information of a useful character amongst the gardeners in the United Kingdom, and it was now paying its way with advertisements and donations.

With regard to the badges, the Chairman said he would like to see every gardener wearing one,

as a mark to distinguish the intelligent members of the gardening craft.

So far as the financial position of the B.G.A. was concerned, there was a larger balance than ever to its credit, although the expenses were heavier than usual. The work of the association was growing enormously, and entailed an increasing amount of labour upon their secretary.

Mr. Wrigglesworth, of Sunderland, seconded the adoption of the report in an eloquent speech.

Very little discussion took place upon the report, which, upon being put to the meeting, was carried unanimously.

A discussion arose, however, on the question of giving an honorarium to branch secretaries, and many members took part in it. The general opinion was against the payment of branch secretaries out of the funds, but there was no objection to the members of any branch recognising the services of their secretary, and the Executive Council would be pleased to help.

Mr. Raffill was elected treasurer. Mr. J. Weathers secretary, and Messrs. Tinley and Cowley auditors.

ROYAL NATIONAL TULIP. (SOUTHERN EXHIBITION.)

MAY 25.—A society that can boast of a life of 61 years, and that, in its 61st year, can so adapt itself to circumstances as to be able, within 10 days, to find itself a new place for its annual show, may well claim to have a large measure of vitality. The death of King Edward caused the R.N.S. to abandon its meeting on May 17, and as this was the date on which the show had been fixed, it was imperative to find another meeting-place soon. The Tulip season is always comparatively short, but this year, owing to the trying weather it has been even shorter than usual. Mr. Peters, the energetic secretary, was equal to the emergency, and, supported as he was by Mr. J. W. Bentley, Mr. A. D. Hall, and Mr. Needham, a capital little show was arranged, and duly took place at Harpenden on the above date.

Real Tulip shows such as this, and those that take place yearly at Middleton, near Manchester, and at Wakefield, are relics of a past age, when friendly rivalry spurred on exhibitors to efforts as great or even greater than a valuable money prize would do to-day; when a good square meal was part and parcel of the yearly anniversary, and when interest in this one flower alone was sufficient to give life and vitality to its existence. At Harpenden there were not many exhibitors, there were no big prizes, there was not a single flower of any other description in the hall, not a single embellishment, and yet those who were there probably got as much pleasure out of the lovely flowers, so wonderfully marked with their flames and feathers, as a "Templer" would get out of "The Temple." One visitor who is always welcome, and whose presence is almost a necessity, if the full glory of the blooms is to be seen, was absent. It was a pity, for the sun makes all the difference. The flowers arrive in their cases, each one with a "crinny" inside it, and carefully swathed in cotton bandages. Each one is carefully unwrapped and placed in water on the show board, but, alas! if the sun hides his face, "Sir Joseph Paxton" will never open; "Trip to Stockport" or "Masterpiece" will not disclose their beauties, nor will the flames of "Samuel Barlow" or "Talisman" be shown in all their glory.

So it was at Harpenden. Considering the disastrous year, the quality of the blooms was very fair; but when the judging was taking place, they were not sufficiently open to do themselves justice. A wonderful thing happened in regard to the prizes in the two most important classes, viz., those for 12 and for 6 dissimilar rectified Tulips. In both, Mr. J. W. BENTLEY, Mr. A. D. HALL, and Mr. C. W. NEEDHAM were placed equal 1st. The judges, after a long deliberation, found it impossible to separate them. Among the flowers that were particularly good were Bessie, feathered bybloemen; George Heyward, feathered bizarre; Mabel, flamed-rose; old Duke of Devonshire (a Tulip introduced about 1845), feathered bizarre; and Talisman, flamed bybloemen, and Talisman, feathered bybloemen. It was interesting to see the same flower in the two states; both are equally correct, and both are the same Talisman, but when the bulbs "broke" they broke and took on different

markings. "Trip to Stockport" or, as it is usually called, Stockport was very good. It is a variety that is always somewhere very near the top, on account of its perfect form and even markings, a counterpart, as it were, of the famous "Homespun" among the Daffodils. An interesting feature was the new feathered rose "Wagtail." It is one of Mr. A. D. HALL's seedlings, and this is the first time it has "broken." It is expected to improve, and if it does it may become a famous flower like "Sir Joseph Paxton," and "Fanny Kemble" of earlier days. In the other open classes the same three exhibitors, together with Mr. PETERS, divided the prizes between them.

Two Tulips shown in the flamed-rose class deserve mention on account of their historic interest—Aglia, a flower raised 80 years ago by Lawrence, and La Vandikken, an older variety still, as it is certain it existed 120 years ago in Holland. The colour in these was not nearly so bright as in the newer "roses," like Mabel and Annie McGregor. This brightness is a modern development.

In the restricted classes (for those growing under 400 blooming bulbs) the winners were Mr. R. W. HALL, of Cambridge, Miss HARCASLE, of Harpenden, and Mr. BARTLETT, of Shooter's Hill.

The classes for garden and Darwin Tulips were weak. Mr. BALL, of Ramsgate, and Mr. LOAT, of Oxford, who were champions in former years, being both absent.

The premier blooms in the show were:—Breeder Alfred Lloyd, shown by Mr. NEEDHAM; Feathered Stockport, a bybloemen, shown by Mr. HALL; and Samuel Barlow (flamed), shown by Mr. BENTLEY.

ROYAL GARDENERS' ORPHAN FUND. (ANNUAL FESTIVAL DINNER.)

MAY 26.—The 22nd annual festival dinner of the Royal Gardeners' Orphan Fund took place on the 26th ult. at the Hotel Cecil. The president for the evening was Sir Jeremiah Colman, Bart., and he was supported by a company numbering about 140.

After the loyal toasts had been honoured, Sir Jeremiah Colman, Bart., proposed "The Royal Gardeners' Orphan Fund." He reminded those present that there were 127 orphan children of gardeners now receiving the full benefit of 5s. per week from the funds. He referred to the need there was for such a fund, and described how valuable was the help the fund was in a position to afford to necessitous cases. Passing to the subject of gardeners, Sir Jeremiah Colman remarked that the old-fashioned gardener, who found it difficult to always remember that the garden placed in his care belonged to the proprietor, and not to himself, had passed away. Present-day gardeners had learned to accommodate themselves to their masters' wishes and to expend the skill and experience they possess in cultivating those plants or crops in which their employers had most interest. Gardeners were a most honorable and skilful body of men, whilst gardening itself was the most delightful pursuit. Nothing could be more restful or soothing than to turn away from the everyday things of life and study the effects of plant and flower as presented in the garden. Gardeners deserved all the help they could give them. Sir Jeremiah Colman therefore begged those present to do their utmost to ensure that the proceeds of that gathering should constitute a record in the annals of the fund. At the same time, he remarked that it was desirable that gardeners themselves should contribute to this charity in larger numbers than has been the case hitherto.

Mr. Edward Sherwood, hon. treasurer of the fund, responded to the chairman's toast. He commenced by thanking Sir Jeremiah Colman for the very sympathetic letter which he had caused to be circulated amongst the friends of horticulture during the past few weeks. He (Mr. Sherwood) hoped that the Orphan Fund would not suffer from the sadness which had overtaken the country as the result of the lamentable death of the late King. The present receipts were not sufficient to meet the expenses. There were 127 orphans receiving £13 per year each, and at the present time there were 15 children awaiting election whose cases had been sifted by the committee and found so necessitous that 2s. 6d. per week is being allowed each candidate during the time they have to wait. The ex-

penditure during 1909 actually exceeded the receipts, and the receipts during 1909 were rather less than in 1908, when special efforts were made to celebrate the Coming of Age of this Fund. At the recent election in February the committee found itself unable to recommend the election of all the candidates, a circumstance that has not arisen for several years past. He (Mr. Sherwood) felt it a very great privilege to be able to announce to that gathering that the late Baron Schröder, "that great patron of horticulture," had bequeathed the sum of £500 to their charity. This sum would be invested and the interest would be employed in perpetuity for the maintenance of an orphan in honour of that revered name. Mr. Sherwood then referred to a very sad case with which the committee had recently to deal. The father and mother died early in February last, leaving seven children. The baby was adopted by a friend, four of the children were placed in institutions, another is amongst the 15 candidates now awaiting election to the Royal Gardeners' Orphan Fund, and the seventh was received into a School of Handicraft for two years on the condition that the Orphan Fund would subscribe 5s. a week to his maintenance. This was only one of a great number of sad cases presented to the committee from time to time. He begged, therefore, that a larger measure of support may be given to the fund. Referring to a remark by the chairman, he said that whilst many gardeners may find it almost impossible to subscribe 5s. per year, they might form themselves into auxiliaries in various localities and, by subscribing even one penny a month, the sum obtained in this way could be sent each year from that locality and the votes that would be given in exchange for the subscriptions would help to make it more certain that the candidates from that district would be successful in the elections.

The next toast, that of "Gardeners and Gardening," was proposed by Mr. W. Armstrong and responded to by Mr. Harry J. Veitch, chairman and treasurer of the Gardeners' Royal Benevolent Institution. Mr. Veitch congratulated Sir Jeremiah Colman upon the magnificent exhibit of "home-grown Orchids" that Sir Jeremiah had contributed to the Temple Show from the gardens at Gatton Park. Every specimen in that group had been in cultivation at Gatton Park for several years, which said a great deal for Sir Jeremiah Colman's skill as an Orchid grower. As to gardening itself and its development in this country, Mr. Veitch felt he need only point to the Temple Show, which had been open to the public during the past three years. If, he said, that was an ordinary exhibition, what may this country be expected to do in 1912, when they not only hoped to do their very best at the international exhibition, but also to obtain exhibits from foreign countries and from our own Colonies. Mr. Veitch was very glad to be able to state that the committee of the international show had secured a very good site for that exhibition.

The toast of "The Visitors" was given by Mr. N. N. Sherwood, and responded to by Mr. E. A. Ebbelwhite, J.P., Clerk to the Worshipful Company of Gardeners.

The next toast was that of "The Chairman," proposed by Mr. Henry B. May, chairman of the Executive Committee. He stated that it had always been the object of the Executive Committee to invite chairmen for their annual festivals who were intimate with horticulture. In Sir Jeremiah Colman they felt that they had one of the most ardent and skilful horticulturists, who was amongst the most liberal contributors to the first-class horticultural exhibitions. Mr. May said that he would beg the chairman's permission to refer again in a few words to the unfortunate case described by Mr. Edward Sherwood. The committee felt itself in a difficulty in regard to allowing a weekly maintenance sum in respect to the boy who had been placed in the School of Handicraft. The rules of the Fund provided for a sum of 5s. per week to be given to children under 14 years of age, but there was nothing which provided for cases of exceptional distress after a child had passed that age. Considering the exceptional circumstances, he had asked the committee to stretch a point, and at the next annual meeting he would personally ask the subscribers to the fund to sanction the action that had been taken.

In this connection he wished to point out the necessity there was for the institution of an emergency fund, which would be available to the

committee, when it was desirable to afford assistance to the cases that do not come within the scope of the rules. Again and again circumstances had arisen when the lack of such a fund had been felt very acutely by those responsible for the interest of gardeners' orphans.

The toast of "The Press" was proposed by Mr. Edward White, and Mr. J. Harrison Dick made a very suitable reply.

THE HIGHEST COLLECTION ON RECORD.

Mr. Brian Wynne stated that the result of the proceeds of the chairman's list amounted to the record sum of £1,160. Towards this sum, Sir Jeremiah Colman, Bart., had contributed £250; Messrs. N. N. Sherwood & Sons, £100; Mr. Leonard Sutton, £50; Mr. George H. Cutbush, £52 10s.; Mr. G. Reynolds, £37 12s.; Sir Frank Crisp, £27 12s.; Messrs. Rothschild & Sons, £26 5s.; Mr. J. F. McLeod, £27 6s.; Mr. Anthony Waterer, £25; Mr. R. Hooper Pearson, £17; Mr. Whitpain Nutting, £16 5s. 6d.; Mr. F. C. Stainsby, £13; Mr. R. B. Leech, £13 13s.; Mr. David W. Thomson, £13 8s.; Mr. J. C. Eno, £10 10s.; Messrs. Barr & Sons, £10 10s.; Mr. W. Howe, £7 7s.; Mr. T. W. Sanders, £6 6s.; Mr. James Douglas, £6; Mr. W. M. Walters, Mr. Edward White, Mrs. Frederick Colman, Mr. H. G. Jones, Mr. H. B. May, The Worshipful Company of Gardeners, Messrs. Osman & Co., Ltd., Messrs. Jas. Veitch & Sons, Ltd., Mr. Harry J. Veitch, The Thames Bank Iron Co., Messrs. J. T. Anderson & Sons, Ltd., Mr. William Atkinson, Mr. W. C. Dawes, and Mr. Chas. Heidseick, 5 gns. each; Mr. Robert Gordon, Mrs. Fielden, Mrs. Colman, Mr. Otto Beit, £5 each; Covent Garden Friends, as per collections made by Mr. D. Ingamells, Mr. H. L. Wright, and Mr. W. Poupert, £211 18s. 6d., including Mr. G. Munro, 5 gns.; Mr. E. Rochford, 10 gns.; Mr. John Rochford, 5 gns.; Mr. Joseph Rochford, 5 gns.; Mr. Jesse F. Smith, 5 gns.; Messrs. Parsons & Co., 5 gns.; Messrs. C. P. Kinnell & Co., 5 gns.; Mr. A. F. Dutton, 5 gns., and Mr. H. O. Larsen, 5 gns.

The room and tables were tastefully decorated with plants and flowers kindly supplied by supporters of the Fund, including Messrs. Jas. Veitch & Sons, Mr. R. F. Felton, Messrs. H. B. May & Sons, Messrs. Stuart Low & Co., Messrs. Barr & Sons, and others. Some weeping Standard Roses, placed at intervals on the chairman's table, had a very novel and pleasing effect. For the rest, the flowers consisted of Tulips, Irises, and Carnations, whilst the platform was surrounded by a pretty group of miscellaneous plants supplied by Messrs. Jas. Veitch & Sons.

ROYAL METEOROLOGICAL.

MAY 25.—The afternoon meeting, which had been postponed on account of the late King's death, was held at the Society's rooms on the above date, Mr. H. Mellish (president) in the chair.

A paper on "The Daily Rainfall at the Royal Observatory, Greenwich, 1841-1903," by Mr. W. C. Nash, was read. From the statistics given in this paper it was shown that the average annual rainfall for the 63 years was 24.19 inches with 157 rain days. The day with the maximum number of rain days to its credit is December 5, while the days with the least number of rain days are April 18, 19, June 27, and September 13. There were 94 occasions during the whole period on which the rainfall exceeded 1 inch in the day. The greatest fall was 3.67 inches on July 26, 1867.

Mr. L. C. W. Bonacina read a paper on "Low Temperature Periods during the Winters 1908-9 and 1909-10." It is often observed that if a given week, month or other period in one year is marked by some very special meteorological character with respect to one or more elements of weather, the corresponding period the following year shows exactly the opposite character. Dealing with the last two winters, the author drew attention to four very remarkable frosts which stand out prominently, viz.: (1) December, 1908, in the south of England; (2) March, 1909, in the south of England; (3) November, 1909, in Scotland and Ireland; and (4) January, 1910, in Scotland and the north of England.

Mr. R. Corless read a paper on "The Rate of Rainfall at Kew in 1908," in which he described a method of obtaining information about the rate of fall of rain from the records of a self-recording rain gauge, which yields a continuous trace showing by the position of the pen the amount of rain fallen.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

INTERNATIONAL SHOW AT PARIS.

MAY 25-31.—Those of our readers who remember the two handsome glass structures erected on the Cours-la-Reine to serve as the Palace of Horticulture during the Universal Exhibition of Paris in 1900, which subsequently remained for some years and were used for the spring and autumn shows of the National Horticultural Society of France, must have heard with regret of the intention of the Town Council to demolish them. The site was an eminently favourable one, being situated between the Champs Elysées and the River Seine. The area was of considerable extent, affording space for an approach of the most attractive character, and indeed this promenade was a striking feature in connection with these great floral displays.

We were curious to know how the removal of these greenhouses would affect the success of the shows of the National Horticultural Society of

intervals of hardy shrubs and Japanese Maples in variety. M. PAUL LÉCOLIER likewise contributed several similar groups. The well-known house of NOMBLOT-BRUNEAU had a great variety of trained fruit trees in every conceivable shape and form, as also had the firm of CROUX ET FILS. The last-named firm exhibited a richly-coloured group of ornamental plants.

The vista from one end to the other of the large covered-in structure was dazzling in the extreme on account of the brilliancy of the colours of the many exhibits. A small side-room was devoted to Orchids and stove plants, but the exhibits fell far short of the displays at a Temple Show.

It will be well before proceeding further to enumerate briefly the names of the winners of the most important prizes. The premier grand prize of honour given by the President of the French Republic was awarded to MM. VILMORIN, ANDRIEUX ET CIE. for their exhibits of flowering plants and vegetables. The 2nd grand prize of honour, given by the Minister of Public Instruction, was made in favour of MM.

consisted chiefly of Odontoglossums; and M. BERT displayed Cattleyas and Lælio-Cattleyas in quantity. A lovely display of choice foliage plants was set up by MM. CHANTRIER, FRERES, consisting of Bertolonias, Begonias, Anthuriums, Nepenthes, and Dracænas. Another grower, Mme. BERANEK, had a pleasing group of Orchids, flanked on each side with fine ornamental foliage plants, including Anthuriums, Kentias, Dieffenbachias, Aspleniums, Marantas, Dracænas, and Nephrolepis Ferns.

Roses and flowers generally were shown in large and varied groups. Especially fine displays were made in several parts of the shown by MM. VILMORIN, ANDRIEUX ET CIE. In one prettily-shaped bed, edged with golden Pyrethrum, were Astilbe (*Spiræa*) japonica, flanked with bright red-flowered *Gerbera Jamesonii*. Two enormous beds from the same firm occupied a large space near the steps leading to the lower promenade alongside the Seine. They were filled with hardy flowers of the season in endless variety. Stocks, Nasturtiums, Ageratums, Mig-



THE PARIS SHOW.

FIG. 165.—IRIS GARDEN AND ROCKWORK EXHIBITED BY MM. VILMORIN, ANDRIEUX ET CIE.

France, and when we heard that they would be held in a tent we imagined that the shows would in consequence be something in the nature of our own Temple Shows. But the French interpretation of tent is far different from ours, and the reader may judge of our surprise when we entered the show last week to find ourselves in a gigantic construction built of wood and iron and covered with a canvas roof of considerable height, the whole building being some 400 yards in length. In addition to this covered area, there was a promenade alongside the Seine, another on the Champs Elysées side, and also a third promenade immediately in the rear. Along the first two were the numerous exhibits of greenhouses, garden pottery, statuary, boilers, and other garden sundries. The promenade in the rear communicating with the back entrance to the show was divided into four alleys, each one bordered with the trained fruit trees and ornamental shrubs that form important features of a Paris show. M. BROCHET had several fine groups at

CROUX ET FILS for Rhododendrons and fruit trees. Prizes of honour were gained by MM. LEVÊQUE for Roses; MM. CORDONNIER ET FILS for forced fruit, M. DEBRIE-LACHAUME for floral decorations, and M. GRAIRÉ for Orchids. Other winners of leading prizes were MM. PAGE, FERARD, MARON ET FILS, MOSER ET FILS, GEO. TRUFFAUT, NOMBLOT-BRUNEAU, COCHU, TOURET and MARTRE.

In addition to these there were numerous medals awarded in the 372 classes provided for by the schedule, which comprised 16 main sections, the jury appointed being an international one and consisting of 87 members, with an additional jury of eight members to deal with the exhibits in the fine art section.

In the Orchid room were some daintily-arranged exhibits of medium extent from MM. MARON ET FILS, who showed a varied and interesting collection of Cattleyas, Lælio-Cattleyas, Odontoglossums, Oncidiums, and Cypripediums; M. GRAIRÉ, whose exhibit

nonette, *Silene*, *Antirrhinums*, and similar subjects were arranged along one side. Then came a cleverly-designed water scene, with green turf to the water's edge studded here and there with clumps of Iris (see fig. 165). Passing onward in the direction of the steps were large masses of *Cinerarias*, *Calceolarias*, *Kalanchoe flammea*, and many other kinds. Just where the steps began and on each hand a slope was filled with rockwork planted with Alpines. The arrangement by MM. VILMORIN was practically in duplicate, and was fully in accordance with the traditions of this world-renowned firm.

Carnations were shown in rather smaller numbers than is usual. A collection of French varieties was staged by the ETABLISSEMENT CAILLET COTTAGE. M. B. CARRIAT also set up a collection of French varieties in vases. Mr. ENGELMANN, of Saffron Walden, had a good stand in tall vases showing the variety *Carola*.

Messrs. G. & A. CLARK, LTD., Dover, put up a very pretty mixed group of flowering plants that

was much admired. A large number of bunches of Sweet Peas were displayed on an arch over the exhibit, which contained Iris, Geums, *Verbena* Miss Willmott, *Pyrethrums*, Oriental Poppies, *Trollius* Orange Globe, Ivy-leaved *Pelargoniums* Leopard, Baden Powell, and Scarlet Mme. Crousse, relieved with some succulents and clumps of ribbon grass.

The ETABLISSEMENT À LA PENSÉE showed a pretty collection of Pansies. M. PERRET displayed *Hydrangeas*; M. E. TABAR, a collection of *Iris* *Kämpferi* in many varieties; M. KRATZER sent some fine foliage *Begonias* and *Pelargoniums*.

From M. A. GRAVEREAU there came a mixed collection of some extent, containing *Petunias*, *Mimulus*, Pansies, edged with a broad border of *Viola cornuta alba*. He also showed a group of *Nemesia* with a similar edging. *Fuchsias* were represented by a small collection from M. FRANCOIS.

There were several good collections of *Pæonies*. M. AUG. DESSERT, a well-known specialist in these plants, had *Balzac*, *Athlete*, *Chantecler*, *Weisse*, *Blanche de Noisette*, and many others of fine size and substance. Another exhibitor of *Pæonies* was M. BENOIST RIVIERE. A very bright lot of *Pæonies* also came from M. A. BROCHET. *Elisabeth*, *Reine Victoria*, *Purity*, *Flora*, *Jeanne d'Arc*, *Princesse Louise*, and *Le Soleil* were notable examples.

MM. CAYEUX ET LECLERC had several mixed groups of hardy herbaceous and other seasonable flowers in large variety and extent. Some fine *Hydrangeas* were sent by M. MOUILLÈRE, and MM. C. ANGEL ET FILS staged a large mixed collection of *Pæonies*, *Anemones*, *Tulips*, *Irises*, *Gladioli*, *Eremuri*, &c.

Along a large portion of the left-hand side of the show, M. ROBERT LEBAUDY had several most delightful groups. One was composed entirely of *Caladiums*. We noted as especially good the varieties *L'Automne*, *M. A. Hardy*, *John Box*, *Virgille*, *Ferd. de Lesseps*, *Perle du Brésil*, *Clio*, and *M. Alphaud*. His second group contained *Dracænas* and *Orchids* in variety. A third comprised a fine collection of *Dracænas*, the most attractive being *Lady Zetland*, *Queen Victoria*, *Reedii*, *Thompsonii*, and *Alexandre III*. The same exhibitor staged, in continuation of his other exhibits, a long bank of well-flowered plants of *Begonia Gloire de Lorraine*, set up in fine style.

MM. POIFOL ET GAUTIER sent some finely-flowered *Cannas*, comprising *Junon*, *Bizarre*, *Patrie*, *Souvenir de J. Crozy*, *Amateur Benoit*, *Otto Olberg*, *Coquet Van Tubergen*, *Van der Schoot*, *Jean Brachet*, *Mrs. Dreer*, &c. *Lilacs* in variety came from M. A. J. PETERS, and a group of a new *Calceolaria*, called *Soleil*, was staged by M. FOUCARD.

In the middle of the show there was a large, circular pond, containing a large quantity of aquatics, chiefly *Water Lilies*, from M. LAGRANGE. Tuberous-rooted *Begonias* were well shown. A brilliant display of both double and single varieties was shown by M. BILLARD, whose collections are always noteworthy.

Pelargoniums at the Paris spring show usually form a brilliant sight, and the colours are massed in a manner never seen at the English shows. They are staged in beds on the ground, each colour by itself, in zig-zag panels and other geometrical designs. MM. LE CONTEUX ET FILS exhibited a new Ivy Zonal *Pelargonium*, labelled *President Desseine*, a semi-double, pale-blush, spotted deep-rose.

Another grower of these plants, M. E. POIRIER, had a number of single varieties grown as standards from 3 feet to 6 feet high, forming an imposing exhibit. M. FRANCOIS set up a fine display of single and double Zonal *Pelargoniums* in pots, a dazzling collection, mostly of French origin, comprising *Paul Crampel*, *Andrew Lang*, *Gloire Lyonnaise*, *Michel Crozy*, *Fleur de Rose*, *Mary Pelton*, *Marcel Martinet*, and many others. The same exhibitor had also two very long rectangular beds in the middle of the show, intersected by cross paths, the blooms being closely arranged together in the orthodox French style. The zig-zag panels of colours arranged in the most striking effect contained many single varieties of good form and size mostly unknown to English growers. We specially admired in the aggregate *Victor Grosset*, *Ferd. Fabre*, *Chaplain*, *Michel Crozy*, *Mdlle. Jeanne Poirier*, *Mr. Ward*, and *Mrs. Tuck Hall*.

M. FÉRARD showed several mixed groups of *Spiræa japonica*, *Primula japonica*, and *Rehmannia angulata*, together with two prettily-arranged but very large beds of hardy flowers.

Before leaving the purely floral part of the show, we must not omit to mention a few other important features.

Rhododendrons were shown in large numbers by several of the well-known French cultivators. At the entrance to the show, right and left, there were two collections with a fountain in front, making an attractive advertisement of the show to the passers-by. M. DERUDDER was the exhibitor of these. Then, just inside, after passing the ticket entrance, there were two finely-flowered banks of the same shrubs, shown by MM. CROUX ET FILS. The varieties were staged in immense numbers. We noted *Michael Waterer*, *Lady Eleanor Cathcart*, *Matchless*, *Pink Pearl*, *Mrs. R. S. Holford*, *Purity*, *Sir Isaac Newton*, *Delicatum*, *Nobleanum*, and *Helen Waterer*. A few steps further on was a group of *Rhododendrons* staged by MM. MOSER ET FILS, of *Versailles*, of which *Caractacus*, *G. Claretie*, *Everestianum*, and *Comtesse de Bearn* were conspicuous examples.

The same firm had an immense group at the far end of the show, arranged in fine form with a winding front. The rear plants were of enormous size, and in full flower, producing a grand colour effect. MM. MOSER ET FILS also contributed right and left of the entrance to the fine art gallery two superb triangular beds of *Rhododendrons*.

Clematis were not so numerous as usual, but the well-known grower, M. GEO. BOUCHER, had a corner exhibit containing many choice varieties. He also had a collection of *Viburnum plicatum* and *Rehmannia angulata* in quantity at the extreme end of his *Clematis* exhibit.

M. FARGETON FILS showed plants of *Hydrangea hortensis*. The varieties *La Lorraine*, *Avalanche*, and *Bouquet Rose* were in fine form in a bank that ran for a length of about 25 feet. MM. GIRAUD ET CIE. presented some fine heads of white *Hydrangeas*.

Azaleas were shown by MM. CROUX ET FILS. It would be difficult to give in a few words an idea of this excellent group. We may mention, among some of the most attractive plants, *Aida*, *Il Tasso*, *Pallas*, *Imperialis*, *Emile Liebig*, *Rosalind*, *Unique*, *René*, *Byron*, and *Anthony Koster*. A long bank of *Azalea Mollis* and *A. pontica* was also staged by MM. MOSER ET FILS in most attractive style. Another exhibit of *Azaleas* came from M. ROYER.

Decorative groups of ornamental-foliaged plants were well represented. M. DESIRÉ RAMELET filled a length of about 18 feet of the side border with these plants. Very good examples of *Adiantum grande*, *A. sancta Catharinæ*, *A. Birkenheadii*, *A. farleyense*, *A. decorum elegans*, *A. pedatum*, *Nephrolepis Whitmannii*, *N. tessellata*, *N. compacta*, *N. superba*, *Osmunda palustris*, and others were shown. Another very varied and handsome collection of Ferns was displayed by MM. LE CONTEUX ET FILS. It was a mixed collection, mainly composed of medium-sized plants of different varieties of *Pteris*, *Adiantum*, *Nephrolepis*, *Polypodium*, *Asplenium*, *Gymnogramma*, *Platynerium*, and *Lomaria*.

M. LOUIS DALLÉ staged a fine and imposing bank of lofty *Palms* and other foliage plants, filling a large space along the side wall. It was enlivened by the addition of *Dracænas* and small Ferns in front.

M. DESIRÉ DESMONTS staged foliage *Begonias* in large and varied selection.

A very graceful group was exhibited by M. VAZON. *Pandanus Veitchii*, *Kentia Belmoreana*, *Anthurium Hookeri*, *Maranta Porteana*, *Cycas revoluta*, *Pandanus utilis*, various *Dracænas*, *Crotons*, and *Palms* were included. Not far off was another exhibit, in two lots, from MM. LECOINTE ET MARTIN, composed exclusively of ornamental *Maples*.

Japanese dwarf trees were shown in a neat little collection by M. LEON FONTENEAU. M. A. BROCHET staged Ferns, and M. MARCEL PICQUEFEU had a mixed group of *Taxus*, *Abies*, *Thuja*, *Cedrus*, *Juniperus*, *Cupressus*, *Thuyopsis*, and other *Conifers*.

FLORAL DECORATIONS were well shown. They were this year placed in a corner of the show near each other instead of being interspersed throughout the exhibition. M. ED. DEBRIE and M. LACHAUME had excellent designs of floral art.

FRUIT.

Collections of forced fruit were numerous, and displayed great ingenuity in the tasteful method of arrangement. Without exception, every exhibitor set up his exhibit in glass cases. One of the first to attract our notice was that staged by the SOCIÉTÉ ANONYME DES FORCERIES DE LA SEINE. It comprised neat boxes of *Peaches* *Amsden*, *Surpasse Amsden*, and *Précoce de Hall*. The same firm exhibited *Nectarines* *Early Rivers*, *Lord Napier* and *Croncles*.

The well-known growers of Bailleul, MM. A. CORDONNIER ET FILS, had a grand display of several beautifully-arranged cases of the choicest fruit—*Grape Black Alicante* and *Plums* in one. In another, *Grapes* *Foster's Seedling* and *Frankenthal*, with sundry variety of *Plums*. Another case contained *Peaches*, *Nectarines*, *Cherries* and *Strawberries*. MM. DUPONT-BARBIER staged fruit in glass cases occupying a length of about 65 feet, being draped in front with deep crimson velvet—*Apples*, *Melons*, *Peaches*, *Grapes*, *Figs*, *Raspberries*, *Pears*, and other fruits. The centre case was decorated with *Roses*, *Ferns* and *Smilax*, flanked on either side with two immense bundles of *Asparagus*, while the intervening space was filled with large *Pears*, *Grapes* and *Strawberries*; some fine *Strawberries* and large examples of *Pears* *Bergamotte Esperen*, *Directeur Alphaud*, *Doyenné d'Hiver*, and *Passe Crasanne* completed the stand. Another important exhibit of fruit was arranged by M. L. PARENT. In his case he had on the back some fruit trees and *Strawberry* plants in full bearing. *Plums*, *Red Currants*, *Raspberries*, *Figs* and *Pears* were neatly arranged in small boxes.

VEGETABLES.

Those who have once visited the Paris Show need no reminding of the handsome and gigantic displays of vegetables that MM. VILMORIN, ANDRIEUX ET CIE. are in the habit of making there. On the present occasion the firm made no exception to their general rule. Two grand lots of great extent and variety were staged containing every conceivable vegetable that even the French palate could desire at this season of the year, the whole group being set off at intervals by a large standard *Rhododendron*. The ROTTERDAMSCHÉ TUINBOUD VEREENIGING also staged a very large and representative collection in an adjoining room, opposite to which was a somewhat smaller one from the HOSPICE DE BICÊTRE. M. CAUCHOIS had a series of *Mushroom* beds in bearing. M. JUIGNET showed some monster bundles of *Giant Asparagus* in the same room.

Among other features of the show was M. GEO. TRUFFAUT's scientific exhibition, which was also displayed in a side room by itself. This consisted of a large number of cases, in which injurious insects, worms, moths, &c., were represented.

The fine art section of the society showed an interesting exhibit of pictures in oil and water-colours of plants, fruit and flowers, the works of well-known artists connected with the society.

A brief reference may be made to the retrospective exhibition of the Rose organised on similar lines to the *Chrysanthemum Retrospective Exhibition* in November, 1908. There was, besides the literary and artistic exhibits, a small Rose garden depicting the progress of the Rose from its origin to the present day.

FURTHER NOTES BY MR. GEORGE PAUL, V.M.H.

The judges met at the exhibition at eight o'clock on Wednesday morning, and at 10.30 a.m. the show was opened to the public by the President. The presidents of the several sections met at about 11.30 to decide the Grand National and other awards. The Juries were composed of representatives from England and most of the Continental countries, including Belgium, Luxembourg, Holland, Germany, Italy, Switzerland, Austria, and Hungary. The President's prize was awarded to MM. VILMORIN, ANDRIEUX ET CIE. for their magnificent display of annuals, herbaceous plants, and vegetables. That offered by the Minister of Education was won by MM. CROUX ET FILS, while MM. LEVEQUE ET FILS were given the Gold Medal offered by the Minister of Agriculture, for their exhibit of *Roses*, and MM. CORDONNIER ET FIL for their forced fruits. A splendid display of floral decorations by M.

LACHAUME won the large Gold Medal offered by the Department de la Seine. MM. MOSER ET FILS gained the Gold Medal offered by M. Duchart, for a fine display of specimen Rhododendrons. A very effective exhibit was that of M. GEORGE TRUFFAUT, showing the life history of various insect pests. This deservedly gained the Gold Medal offered by the Syndicate of French Seedsmen.

Taking the exhibition as a whole, the one thing that impressed the foreign visitor was the subordination of the whole of the exhibits to the production of a general effect, so that the *coup d'oeil* of the whole show was most effective.

Amongst the special exhibits, Roses were prominent, the leading exhibits in these being collections of standard Roses in series of 200 and 100 lots. There were masses of dwarf Roses and a few new varieties, but no sort which stood out above its fellows was exhibited. The flowers were not of the high excellence to be seen in the English collections. The three principal exhibitors were MM. LEVEQUE ET FILS, M. M. BOUCHER, and M. DEFRESNE. M. AUG. NONIN showed a charming collection of weeping and pillar Roses, much in the English style, to which one of the leading prizes was given with the addition of a special prize of 100 fr. offered by an amateur.

The exhibits of MM. VILMORIN, ANDRIEUX ET CIE., consisting of beautiful groups of herbaceous plants and annuals, one, a massive group, forming a foreground to the group of Rhododendrons shown by M. MOSER, were very beautiful. There were masses of Stocks, herbaceous plants, rock plants descending by the sides of the steps leading down to the Seine, Iris Kämpferi surrounding basins of water (see fig. 165), and almost gardens of vegetables, including Asparagus, Radishes, and Mushrooms. The display won the highest award.

The exhibits of Orchids did not seem to reach the average seen at English shows—certainly not those of the Temple—and no special variety attracted attention. Some medium-sized plants of Azaleas were well shown by M. ROYER, of Versailles, whilst Rhododendrons and Azaleas were well exhibited by MM. CROUSSE ET FILS and by M. MOSER, of Versailles. Amongst the former, a few kinds not much known in English gardens were seen, such as Leon Say, M. Geomans and Robert Crousse; there was also a white Rhododendron (Azalea), supposed to be hardy, named *ledifolium leucanthemum*.

Tree Pæonies were shown largely, but there did not seem much novelty in them.

In bedding Pelargoniums, both double and single-flowered, a very pretty effect was produced by MM. POIRIER, of Versailles. They were shown in diamond-shaped beds, mostly about 50 plants of one kind, each with a single truss of flowers. The varieties were mostly of Continental character, but Paul Crampel stood out well amongst its compeers.

One pretty exhibit was of *Ampelopsis Henryi*, trained as bushes.

There were two English exhibitors, G. & A. CLARK, LTD., Dover, who obtained a Gold Medal for Sweet Peas and one or two other awards for minor distinct exhibits, and Mr. ENGELMANN had a high award for his new Carnation Carola. M. TABER showed a very beautiful group of Iris Kämpferi in pots, and MM. ANGEL ET FILS a fine group of *Eremurus robustus*. There was also an interesting exhibit from M. MOULIERE, of Vendome, for his Hydrangeas. Mme. Raymond, Souvenir de Mme. Chaubard, and Reine Gaillard were the best novelties.

The arrangements for the entertainment of the members of the Jury were excellent, commencing with a luncheon to the judges and exhibitors in the adjoining restaurant in the Champs Elysée, at which one or two of the Ministers were present. This was followed by a reception by the Nursery and Seed Trade Association at the Hotel of the Society of Horticulture of France. On Thursday a Congress of the National Rose Society of France was held, at which several decisions were arrived at, more especially on the question of not altering or translating the names given in the country where a new Rose is raised, and the reference to the Rose societies of the question of synonyms. At four o'clock a reception was held at the Hotel de Ville, where speeches were made by the Prefects of Paris, of the Seine, and of the Police, and by the president of the French Horticultural Society. A dinner at the Hotel Continental, at

which some 400 people were present, including ex-President Loubet, who made an excellent speech, ended that day.

On Friday an excursion was made to Verrieres, the seat and experimental grounds of M. P. de Vilmorin, where some 420 of the visitors were entertained to luncheon.

On Saturday an excursion took place to Versailles, to see the new Rose garden of the State at La Bagatelle in the Bois. This was followed by a reception at the Hotel de Ville, Versailles, by the Prefect. A visit to the State School of Horticulture, a luncheon, at which the Mayor of the town presided, and a subsequent visit to the palace and grounds of the Trianon, and to the nurseries of MM. Truffaut and Moser, completed a programme which, under the admirable management of M. George Truffaut, of Versailles, was conducted in such a manner as to secure the greatest enjoyment and comfort of the visitors. *George Paul.*

Obituary.

ERNEST CALVAT.—The death of this eminent French Chrysanthemum grower and raiser has taken place suddenly at his home at Grenoble. When the news reached Paris towards the close of last week it was received with consternation by



THE LATE ERNEST CALVAT.

many of the Chrysanthemum growers who were present at the Paris spring show, and they were unanimous in their opinion that such a loss is an irreparable one for French horticulture in general, but certainly for the Chrysanthemum-growing fraternity in particular. It is now nearly 19 years since M. Calvat's name first became known in England in connection with the Chrysanthemum. He was the greatest raiser of new Chrysanthemums the world has ever known. It is a curious fact that he was not a nurseryman or a gardener by training. He was the son of M. Calvat, formerly Mayor of Grenoble, and was born in that city in 1852. After receiving the education usually given to young Frenchmen in his sphere of life he was sent to an English boarding school at Highgate, there to complete his studies in English. On his return to France he entered the important glove factory carried on by his father, whose business connections with this country and the Colonies were considerable. Some years later, when his father gave up the business, M. Calvat remained as head of the firm, but notwithstanding his being a business man, he employed his spare moments in the hobby of gardening, to which he was devoted. About 1887 he first began to grow Chrysanthemums, and shortly afterwards he turned to advantage the favourable site and climate by raising his first seedlings.

Some of his earliest novelties were exhibited at the meetings of the National Chrysanthemum Society. It may be pointed out that, up to that date, exhibitors of novelties from the other side of the Channel had no very definite conception of what a show Chrysanthemum was like in this country. Some will remember the astonishment of the members of the Floral Committee when the blooms were staged. First-class certificates were awarded to Mrs. C. Harman Payne, a Japanese variety that long remained a prominent show flower, and to Comtesse de Galbert; a commendation was awarded to Exposition de Grenoble. For some few years M. Calvat was a regular exhibitor at the National Chrysanthemum meetings, where his novelties received many distinctions. At the meeting held on November 22, 1893, besides gaining several first-class certificates, one of these for the famous Mme. Carnot, the committee awarded M. Calvat the Silver Medal of the Society in recognition of the high quality of the entire collection. When M. Calvat first appeared on the scene the products of the older French growers were at a low ebb, and the American seedlings were strongly in evidence. But Calvat's novelties took the public taste, or, rather, the exhibitors' taste, and in a remarkably short space of time he had practically swept the boards at the English and Scotch shows of almost everything that had been previously grown. His success in France was no less surprising. M. Cordonnier and M. Fatzner had begun to show the French what big-bloom culture really meant. With M. Calvat's novelties, all of them big, heavy, deeply-built flowers, there was a fund of new material to work with, and the French autumn shows, like ours, underwent a complete transformation.

It would be of little value for us to record the long-continued series of gigantic Japanese and even Incurveds that came from M. Calvat's seed-bed. After a time he gave up his glove business and devoted himself solely to the raising and growing of Chrysanthemums. Although the sale of plants was an important branch of his business, yet it must not be forgotten that he grew tens of thousands of large show blooms for the Parisian florists. He was a large exhibitor at all the shows on the Continent, where he gained numerous awards.

M. Calvat was always courteous and genial, never vainglorious; he had a quiet self-possession that seemed to accept success without any undue rejoicing over his rivals. The crowning success was undoubtedly that which he obtained in Paris in November, 1908, when, for the first time on record, a Chrysanthemum raiser obtained a Grand Prix d'Honneur. He was a recipient of many distinctions. He had long been an honorary fellow of the National Chrysanthemum Society. He was also a vice-president of the Société Française des Chrysanthémistes and president of the Société Horticole Dauphinoise. Among his decorations he had been successively chevalier, officer and commander of the Mérite Agricole. He was a Knight of the Order of the Crown of Italy, an officer of the French Academy, and he possessed a Tunisian Order.

THE WEATHER.

THE WEATHER IN WEST HERTS

Week ending June 1.

A week of "growing" weather—During the past week there have been only two moderately cold days, and but one cold night. On the warmest day the temperature in the thermometer screen rose to 71°, and on the one cold night the exposed thermometer fell to within 5° of the freezing point. The ground is now of about seasonable warmth at 1 foot deep, and 1° warmer than the average at 2 feet deep. Rain fell on three days to the total depth of half an inch. A small amount of rainwater passed through the bare-soil percolation gauge this morning, but with this exception there has been no measurable quantity through either gauge during the week. The sun shone on an average for five hours a day, or for about an hour a day less than the usual duration at the end of May. On the first two days of the week the wind came from some northerly point, but since then westerly breezes have, as a rule, prevailed. The mean amount of moisture in the air at 8 o'clock in the afternoon exceeded a seasonable quantity for that hour by seven per cent. *E. M., "Rosebank," Berkhamsted, June 1, 1910.*

SCHEDULE RECEIVED.

Hemel Hempstead Horticultural Society's 51st annual show, to be held in the Bury Meadows, Hemel Hempstead, on Wednesday, August 31; also the 3rd Rose and Sweet Pea exhibition, to be held in the grounds of the Old House, Marlowes. Copies of the schedules may be obtained from the secretary, Mr. H. Jennings, Marlowes, Hemel Hempstead.

GARDENING APPOINTMENTS.

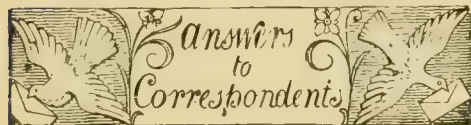
(Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.)

Mr. MATTHEW FINNEY, for the past 4 years Gardener to A. M. KIRKER, Esq., J.P., Craigard House, Co. Down, and previously for 15 years Gardener to the late GEORGE EVANS, Esq., Gortmerron House, Dungannon, Co. Tyrone, as Gardener to the Right Hon. the Earl of RANFURLY, Northland House, Dungannon, Co. Tyrone. (Thanks for 1s. 6d. enclosed for R.G.O.F. Box.—Eds.)

Mr. ALLAN MOUNTFORD, for 2 years Gardener to JOSEPH PIKE, Esq., Dunslund, Glanmire, Co. Cork, and previously Foreman at Powerscourt Gardens, Enniskerry, Co. Wicklow, as Gardener to W. CUNLIFFE, Esq., Headley Court, Epsom, Surrey.

Mr. F. A. EDWARDS, for 2½ years Gardener to the late Lady CHICHESTER, Arlington Court, Barnstable, as Gardener to A. H. HARMAN, Esq., Lower Grayswood, Haslemere, Surrey.

Mr. F. W. CHILVERS, formerly of Wm. KNIGHT's nurseries, and 7 years Gardener for J. B. CAMPION COLES, Esq., as Gardener to CECIL CHANDLESS, Esq., Sherrington Manor, near Berwick, Sussex.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

APPLE SHOOTS STUNTED: *Anxious*. Adverse weather conditions are responsible solely for the injury to the shoots. In the case of Cox's Orange Pippin, there appears to be a little Apple scab on the leaves. In this case the tree should be sprayed with the Bordeaux mixture, after removing any dead twigs and burning them.

CAULIFLOWER: *Smyke*. The inflorescence has become fasciated through some irregular condition of growth. It is not any special variety.

CHRYSANTHEMUM LEAVES SPOTTED: *J. P.* No disease is present. The trouble is due to some error of culture, probably allowing too much moisture to condense on the foliage.

CINERARIA BLOOMS: *J. W.* The flowers are large, but not exceptionally so. The variety is worth perpetuating.

CRICKETS IN GLASSHOUSES: *J. S. L.* See answer to *Inquirer* under "Insects in Orchid House."

FLOWERS OF SULPHUR: *A. E., Harsfield*. The black sulphur is not so suitable as a fungicide as the ordinary flowers of sulphur, which can be obtained from any chemist or Italian warehouseman. Black sulphur contains a considerable amount of arsenic, and its use might not be advisable under certain circumstances.

GRAPE BLACK HAMBURGH: *G. R.* No disease is present; the cause must be attributed to wrong cultural treatment.

GRAPES DISEASED: *F. T. B.* The Grapes are badly attacked by *Guignardia Bidwellii*, causing black rot. But little can be done now. The fungus is probably present on some of the rods, where it forms brown patches studded with black points; infected portions should be removed. When the plants are resting, drench the canes thoroughly with the Bordeaux mixture made at half strength.—*C. F. C. and Enquirer*.—The berries are affected with "spot" (*Gloeosporium ampelophagum*). Cut out all the diseased berries and burn them. Spray the bunches with liver of sulphur, using half an ounce in two gallons of water. Be careful the liquid does not reach the paint on the woodwork, as the sulphur combines with the lead to form lead sulphide, thus causing the paint to turn black.

INSECTS IN ORCHID HOUSE: *Inquirer*. Slugs may be trapped by laying Lettuce leaves and inspecting them every morning, and by continually watching for them when watering or carrying out any other operation in the Orchid houses. A visit to the house at night rarely goes unrewarded, for insect pests are more in evidence then than in the daytime. Woodlice may be trapped by hollowed halves of Potatoes placed on the surface of the plants or staking, concave side downwards. These should be

lifted periodically for the purpose of destroying the insects collected in them. If the pests are numerous, the whole house should be overhauled, in order to remove rubbish and any probable harbours for insects. Inverted pots on which plants are often elevated serve as harbours for insects, and they should be lifted and inspected, and their number reduced as much as possible. Cockroaches may be destroyed by laying phosphor paste on pieces of paper placed in their haunts in the evening, and removed in the morning, the supply being renewed for several days and then discontinued for a similar period of time before recommencing to use them. Insect pests should never be allowed to become numerous. If remedial measures are taken when they first appear, they can be got rid of the more easily.

LAWN TURF: *D. & Co.* The turf is infested with the weed *Arenaria tenuifolia* (Fine-leaved Sandwort), which has entirely destroyed all the grasses. Apply at once a dressing of sulphate of iron at the rate of 6 ounces per square yard; this will kill off the weed. Then make a mixture of three parts superphosphate and two parts of sulphate ammonia, and apply 4 ounces per square yard of surface to encourage the grasses. A portion of the turf might be treated with a mixture of fine road scrapings and soot, to which may be added some finely-sifted horse droppings.

MYOSOTIS SEEDLING: *Lady C.* Seedlings of Forget-me-Not are very variable, but in their habit and flowering your example is rather better than most strains, and worth perpetuating.

NAMES OF FRUITS: *A. C.* The Peach is the variety known as Amsden. It is a poor specimen, probably because very little sunshine reaches the back wall.

NAMES OF PLANTS: *A. M.* *Tiarella cordifolia*.—*W. J. G.* *Hymenocallis* (*Pancratium*) *macrostephana*.—*W. H. D.* *Brassia verrucosa*.—*Anno Domini*. 1, *Codiaeum* (*Croton*) *Evansianum*; 2, *Codiaeum Weissmannii*; 3, *Codiaeum spirale*; 4, *Abutilon Savitzi*; 5, *Pteris Wimsetii*; 6, *Pteris serrulata*.—*W. R. Price*. *Saxifraga trifurcata*, *Clematis montana*, *Geranium pratense*.—*T. A. L.* *Saxifraga muscoides* var. *Rhei*.—*W. M.* *Berberis vulgaris*, *Tulipa spathulata*, *Saxifraga granulata* var. *flor. pleno*.—*W. Stallard*. 1, *Sedum Aizoon*; 2, send in flower; 3, *Phlox lilacina*; 4, *Sidalcea candida*; 5 and 6, send again when in flower.—*F. V. B.* 1, *Prunus Padus* (Bird Cherry); 2, *Cupressus pisifera* var. *squarrosa* (commonly known as *Retinospora squarrosa*); 3, *Cupressus pisifera* var. *filifera*; 4, *C. obtusa* tetragona aurea; 5, *C. Lawsoniana* Allumi; 6, *Thuja orientalis ericoides* (*Retinospora ericoides* of gardens).—*F. D., Herault*. The *Hoya* with a lanceolate leaf is probably a new species. The other *Hoya*, of which you sent the leaf only, appears to be *H. obovata*, but, in the absence of flowers, it is impossible to name it with certainty.—*R. J. F.* 1, *Vitis heterophylla* variegata; 2, *Sedum Sieboldii* variegata; 3, *Weigela hortensis* variegata; 4, *Kerria japonica* flor. pleno.—*M. P., Christchurch*. *Dendrobium clavatum*.—*F. C., Guildford*. *Akebia quinata*.—*A. de S., Madeira*. *Sobralia*, probably *S. macrantha*. The flowers are rose-coloured and large. You could get specimens at about 10s. each.—*F. A. M.* 1, *Odontoglossum nevadense*; 2, *Oncidium pubes*; 3, *O. spilopterum*; 4, *Lycaste plana*; 5, *Cochlidium sanguinea*; 6, *Epidendrum virens*.—*T. E.* *Ipomoea Quamoclit*. Wing-leaved *Ipomoea*, figured in the *Botanical Magazine*, t. 244. Common in many parts of the Tropics.—*Orchid*. *Maxillaria picta*.—*A. J. J. G.* 1, *Cytisus hirsutus*; 2, *Lonicera Standishii*; 3, *Spiraea bracteata*; 4, *Weigela rosea*; 5, *Lonicera involucrata*.

OPHIPOGON SPICATA: *Subscriber*. Allow the plants a restricted root run and afford water sparingly. In the autumn keep them comparatively dry, and endeavour to ripen the crowns thoroughly. The next season the plants should flower satisfactorily.

PEACHES DISFIGURED: *A. B. H.* No disease is present. The marks are the result of minute scars, made when the fruits were quite small.

PEACH LEAVES: *C. H.* The leaves are affected with "Blister" (*Eosascus deformans*). It is probably due to the cold weather in spring. As a preventive, plant the trees against walls

facing south in a sheltered part of the garden. Remove any diseased leaves as soon as detected, and burn them, and prune those branches bearing diseased leaves beyond the point of infection. Spray with dilute ammoniacal solution of copper carbonate at intervals.

PEACH LEAVES DISEASED: *T. D.* The trouble is due to "shot-hole" fungus (*Cercospora circumscissa*). Spray the trees at intervals with the ammoniacal solution of copper carbonate.

PEACH MILDEW: *Northumbrian*. The fruits are affected with Peach mildew. Gather the diseased fruits and burn them; afterwards spray the trees with some fungicide, such as liver of sulphur.

PROPAGATION OF HYACINTHS BY NOTCHING: *J. J.* The illustrations you refer to formed the supplements to our issues for May 1 and May 8, 1909. The bulbs are cut in June, placed direct in trays, and kept in a high temperature. In time the tiny bulbils appear along the cut furrows. In October and November they are detached and planted in the nursery.

RHODODENDRON (AZALEA) GALLS: *T. A.* See reply to *R. G.*, page 360, in the last issue.

RHODODENDRON LEAVES SPOTTED: *A. W.* No disease is present. The injury has been caused by drip.

ROSE LEAVES: *G. B.* The Rose foliage is affected with a dangerous disease caused by the fungus *Peronospora sparsa*. Spray the trees with a solution of liver of sulphur at the rate of 1 oz. in 3 gallons of water, and afterwards, whilst the leaves are still wet, dust flowers of sulphur over them.

SPENT HOPS: *Wessex*. Spent Hops belong to the waste products often employed as manure, but they have little value beyond that of providing humus, and the mechanical effect they have on the soil, particularly a heavy, clay soil. The use of spent Hops will not repay the cost of haulage to any great distance. A small experiment could easily be tried of the comparative effect of spent Hops and some strawy manure of equal money value.

STOCKS DISEASED: *F. W. C. S.* The seedlings are affected with root rot, caused by *Rhizoctonia*. The plants cannot be cured, but the soil may be treated with lime.

TOMATO SOIL: *Wessex*. Soil which has been used for growing Tomatoes or Cucumbers on an extensive scale is usually found to be greatly affected with injurious bacterial life, very harmful to young plants of other species, and hence the damage to the Carrot crop. It would have been advisable to give to the old Tomato soil a liberal dressing of ground lime, say, 6 lbs. per pole of ground.

VERBENAS: *F. T. B.* The plants are injured by *Erysiphe verbenæ*. Dust the foliage with flowers of sulphur mixed with half its weight of powdered lime.

VINE GROWTHS: *T. H.* See reply to *G. R.*

VINE LEAVES: *Z. O. and J. H.* The spots on the leaves are "sap warts" or "intumescences," produced by an excess of moisture in the atmosphere. Ventilate the house early each morning.

WIREWORMS IN SOIL: *C. P.* Why address the Publisher on such a question? What you mistake for wireworms are millipedes; they are easily distinguishable from wireworms, because, whereas wireworms have three pairs of feet and a sucker foot, millipedes have numerous feet. They are most common in decaying vegetable matter, and are destructive to vegetable and root crops. Before using manure infested with this pest, water the manure with a solution of salt in water. Nitrate of soda and soot are also found useful, and methods recommended for destroying wireworms are just as effective in the case of millipedes. If these pests are troublesome in plant and fruit-houses, large numbers can be caught by trapping them with pieces of mangold

Communications Received.—*R. R. L.* Albion G. W.—*Anxious*, Somerset.—*A. H.*—*T. N.*—*I. S.*—*E. A. Bros.*—*A. S.*—*C. Nicholson*—*G. B. A.*—*A. M.*, Londonderry.—*M. Mc N.*—*J. E. W.*—*X. Y. Z.*—*Platinus*—*G. C. Pearson*—*M. L. D.*—*E. A.*—*Enquirer*—*E. M.*—*W. O.*, France.—*E. A. B.*—*E. B. A.*—*H. T.*—*A. W. T.*—*W. W.*—*H. J. C.*—*B. G.*—*A. P.*—*S. A.*—*S. C.*—*W. H.*—*W. W.*—*R. D.*—*J. D.*—*A. B.*—*P. M. D.*, Wynburg, S. Africa.—*C. H. H.*—*T. B. S.*, Maryland, U.S.A.—*A. G.*—*R. P. D.*—*C. F. B.*—*L. B.*, New York.



Photographs by F. Mason Good.

WILTON HOUSE, NEAR SALISBURY, THE RESIDENCE OF THE EARL OF PEMBROKE.





THE Gardeners' Chronicle

No. 1,224.—SATURDAY, June 11, 1910.

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AN OLD GARDEN MANUSCRIPT.

I AM indebted to Miss Willmott for the opportunity of perusing a volume on gardening, for the greater part in manuscript, which I think has never been published. Its contents include bits from Evelyn, Bradley, Lawrence, Switzer, and Miller, therefore, as a work on gardening its claim to originality is only slight, being to a large extent an abbreviated compilation of the writings of others. The caligraphy is extremely beautiful and so fine that it can be read only for a brief space without tiring the eyes. The matter seems to have been inscribed on narrow sheets of paper, which having been cut to the proper length, have been pasted on the pages of a book bound and prepared for the purpose. It boasts of no general title, each section having one to itself, the first being "The Flower Garden, in two parts," followed by "The Kitchen Garden, in two parts," "The Wilderness, in two parts," the "Greenhouse," and "The Stove," concluding with "The Gardener's Remembrancer, showing the works to be done in the flower garden, kitchen garden, wilderness, the greenhouse and stove in every month through the year." There is also an exception-

ally complete index. McPhail was the author of a volume entitled *The Gardener's Remembrancer*, but the two are distinct.

The exact date of the present manuscript is not easy to determine, the paper marks being undecipherable, but it is possible to approximate the date by a reference to plants, the year of whose introduction is known, and by the compiler having followed Miller in his nomenclature, even to errors in spelling. Judging from these circumstances, it appears not unlikely that it was written previous to 1750, and, perhaps, not earlier than 1744.

Inside the front cover is a Georgian bookplate on which is written "John Hall," and the person whose signature this is, was, obviously, also the scribe who indited the sheets of which it is composed. The arrangement of the several sections is alphabetical, and each subject has brief, cultural notes attached where these appeared necessary. At the end of each division are such general remarks as are needed to complete the teaching; and to describe the conditions asked for by the gardening of the period. Part I. of "The Flower Garden," is, however, merely a list of annuals and biennials, but only the more tender sorts have notes attached. The species or varieties are written in red ink, as is the case in all sections, and there are six chapters or divisions devoted to annuals, of which the first are hardy sorts to be sown in Spring and not to be transplanted. As an example the first noted is: "Alyssoides, two sorts, Hoary and Oriental, the first Bienl." These are respectively *Berteroa* (*Farsetia*) *incana* and *Rapistrum orientale*, and in most instances the names are equally curious, e.g., *Caterpillars*, six sorts; *Gari-della*, *Gnaphalodes*, *Vervain*, three sorts, etc. These are succeeded by an interesting chapter on "Bulbous Rooted Plants," in which 15 sorts of Lilies, and 17 Martagons are mentioned, and no fewer than 43 sorts of Narcissus or Daffodils. A note at the end tells how "Tulips and most other Bulbous Rooted flowers will blow very well and come early by being put in glasses filled with water, placed there in the month of October and November; only continue to give them fresh water once in 5 or 6 days."

"Part the 2d" of "The Flower Garden" treats of "all the Perennials and abiding Plants" in three chapters, one each to the tallest class, middle class, and lowest class. Every genus is briefly and tersely treated upon in relation to its culture, soil, position and propagation. A fair example is this of the "Nonesuch, or Double Scarlet Lychnis, 2 sorts. By parting of their roots in Sept., or by cuttings made of the lower part of their stems of 3 Joynts, about the middle of July; place 2 Joynts in the ground, and water and shade them till rooted. They should have a fresh, light soil, but not too dry." Carnations, Pinks, Auriculas, Hollyhocks and other fibrous-rooted, florist flowers appear in this section. It is remarked of Carnations, if plants late in flowering are lifted from the ground, and placed in pots they will produce flowers most of the winter. Appended to this part is a series of instructive and descriptive notes on the general amenities of the flower garden. These include "Bosquets or little Groves, Cabinets, Compartments, Parterre, Walks, Amphitheatre or Temple of Evergreens, Borders, Basons, a Laun, Destroying

of Insects, Some Rules for Making a Garden, Manures, Water, Some General Rules in Gardening, concluding with 'A List of Flowers blowing in each Month of the Year,'"

The influence of Switzer is observable in several of these essays, but Miller and others also made free of his methods, and this volume under review is only another instance of the manner one writer borrowed from another without making any acknowledgment. Insects, to our author, meant such things as caterpillars, snails, worms, and even "The Bird called Titmouse (which) should carefully be destroyed, and the best way to do it is to catch them with Bird lime." One of the general Rules is to this effect: "By changing of Seeds every year with some curious person at a distance from you, you will have much better flowers than if you continue the same in your own garden."

Succeeding the list of trees and shrubs for "The Wilderness," there are brief instructions on its formation; on Blights "some of which are Occasioned by a dry Easterly Wind for several days;" on transportation of plants, on grafting, on pruning, a nursery, planting an orchard, layering, tree-logging, avenues, draining, hedging, advantages of timber growing, general observations and list of trees and shrubs blowing in each month of the year. A large part of the matter in these chapters may be traced to Miller, but the "Advantages" are abstracted from Bradley, and give in detail his remarkable table of the profits of an acre of trees at the end of 25 years, which amount to exactly £260 10s. 6d. Of the "general observations" it may be noted that root pruning is recommended for "Trees too luxuriant," and the removal of moss is advised. "Trees caught by frost in the bringing from one place to another" were to be placed in a cellar and protected till thawed, and those kept out of the ground too long were to be recovered by steeping the roots in milk and water, or in "Dish water for 24 hours." "The Greenhouse, containing the proper Rules for raising and Cultivating near Five Hundred plants, which require the Shelter of a House, together with the best method of Building of Green Houses, Glass Cases, Dry Stoves, and Bark Stoves," is the formidable title of this section. The notes on *Agapanthus umbellatus* may be reproduced as an example of how the several plants are treated. As in this instance very few plants are described by any other than the vulgar name, the exceptions being cases in which an English designation was unknown. "Hyacinth, African, Tuberosa rooted with the Umbells of Blue Flowers, by Roots put in pots of the same soil as the other sorts of Hyacinths, the end of March before their green leaves are too far advanced. Whilst their leaves are in vigour frequently water them. The middle or end of October place them in the coldest part of the house; when their leaves begin to decay give them but little water. They are propagated by Offsets from the old roots when they are transplanted." It will be understood that during the summer months all greenhouse plants were transferred to a sheltered position in the open, and keeping this fact in view it will be apparent that the treatment of *Agapanthus* was quite correct. The success attending the raising of *Agapanthus* from seeds seems not to have been

recognised by others at that period any more than by the author. The directions for constructing the various houses required for the plants in this section are very clear and without the least attempt at circumlocution. The greenhouse might be a plain building or it might be, according to the fancy of the owner, so grand as to have a marble floor. The plants were protected by means of shutters, and where no provision for heating was made "4 or 6 candles were to be lighted every night during frosty weather, which," it is remarked, "is much better than burning charcole." At the same time the plantsman is warned to "Be not over buisy in warming the House with artificial heat," which, considering the means adopted for its production, seems to be unnecessary advice.

"The Stove, containing upwards of six Hundred plants, with the best Rules for Raising and manageing them," is the heading to a section devoted to most tender plants. There are five divisions, the several plants being located in the one suited to its propagation and culture. Here we find not a few old friends, but in such strange guise that we have a great difficulty in recognising them by name. The last division or chapter refers to "Exotics raised Abroad and brought over in Tubs, guarded from Salt-water in their passage." These comprise Cacao, Gesnera (three sorts), Hog Plum Tree, Lignum Vitæ (two sorts), Lizard's Tail (14 sorts), Mammee Sapota, Melon Thistle (six sorts), Turpentine Tree (two American sorts), and Dwarf American Valerian. Oranges and other greenhouse plants were also imported annually, similarly to Azaleas and other plants at the present time.

The Gardener's Remembrancer is, to a large extent, an abstract of Philip Miller's *Gardener's Kalendar*. It passes in rapid review what it is necessary to attend to in each month, the different departments being treated separately, and, as the former portion of the volume provided a concise cultural treatise on each plant, the object of this later chapter is to remind the cultivator in a few words of what was taught there. Few plants mentioned in the cultural portion are omitted in this. So painstaking were these pioneers! R. P. Brotherston.

HARDY FLOWER BORDER.

FRITILLARIA PALLIDIFLORA.

THIS plant appears to be comparatively rare in cultivation, and its merits certainly deserve to be better known. A single bulb was one of the many treasures that I brought away from Shelford after spending some hours with Sir Michael Foster in his garden in 1906. This has now increased so that there have been eight heads of flowers this year, and I have searched almost in vain in many private and public gardens for specimens of this fine plant.

It may be that my bulb was that of some selected seedling raised at Shelford, but, at any rate, the plants always grow 2 feet in height, although I have seen 9 inches given as the usual height.

The lanceolate leaves are about 6 inches long and 2 inches broad, of an extremely glaucous grey-green colour, and it is perhaps the contrast between the glaucous leaves and the pale lemon-yellow of the numerous flowers that forms the chief beauty of a clump of this Fritillary. Every stem bears from six to twelve flowers, each borne on a stalk of some length (4 to 6 inches) springing from the axil of a leaf. The flowers are thus distributed amongst the leaves and not gathered together in a close cluster as in the Crown Imperials.

The individual flowers are of the palest lemon-yellow about an inch and a half in diameter and slightly more in length. They are usually at their best in the first week of May. W. R. Dykes, Charterhouse, Godalming.

ORCHID NOTES AND GLEANINGS.

ERIA RHYNOSTYLOIDES.

A DESCRIPTION of this fine new species, by Mr. James O'Brien, was published in the *Gardeners' Chronicle*, November 30, 1907. The species was founded on the only known plant, which had been imported from Java, and flowered in the collection of the Hon. Walter Rothschild, at Tring Park, who later presented the plant to the Royal Gardens, Kew, where it again flowered. The excellent photograph from which our illustration (fig. 167) was prepared was

red. The surface of the flower has a granulated, or frosted, appearance, and the ovaries and backs of the sepals are sparsely tomentose. *E. rhyncostyloides* forms a very desirable garden plant, and it is to be hoped that further plants may be imported.

CALANTHE.

CALANTHES are now growing freely. As the pots become full of roots the supply of water must be increased, but it must be intelligently applied, as over-watering at this time of year is one of the primary causes of "spot," which is



[Photograph by C. P. Raffill.]

FIG. 167.—*ERIA RHYNOSTYLOIDES*: FLOWERS, FAINT BLUSH; LABELLUM, ROSE-TINTED AT THE BASE; COLUMN, BROWNISH RED.

taken by Mr. Raffill. *Erica rhyncostyloides* is probably the finest species of its section, and the name is an apt one, for at a glance the inflorescence might easily be mistaken for *Rhyncostylis retusa*, which it resembles in colour and in the dense manner in which the flowers are arranged, although structurally they are quite different. It is a strong-growing species, with brownish pseudo-bulbs furnished with rather fleshy, dark-green leaves. The flowers are white with a slight blush tint; the labellum is rose-tinted at the base, and the apex of the column brownish

apt to disfigure the leaves permanently for the whole season. I have come to the conclusion that when the compost is made thoroughly porous, so that the water percolates freely, the danger of leaf-spot is reduced to a minimum. These terrestrial Orchids flourish and root better if, at potting time, the pseudo-bulbs are placed about 2 inches deep, the risk of the roots getting eaten or broken is minimised, and there is the necessary stability during the time the roots are establishing themselves. A buoyant atmosphere is necessary, and in cases where large quantities

of these flowers are grown it is well to place the plants in parallel rows 9 inches apart, so that the syringe can be freely used amongst the pots. Now that the bright green foliage is developing a more dense shade is needed, for *Calanthes* do not like direct sunshine, except early and late in the season. Scale insects are troublesome, but these can be got rid of by sponging the leaves carefully with any of the well-known insecticides. We have one bulb in the collection here which has produced as many as five growths. *A. W. Proudlock, Hall Garth Gardens, Carnforth.*

NOTE FROM GLASNEVIN.

CASSIOPE.

THE species of *Cassiope* are tiny Alpine bushes somewhat resembling the Heaths. There are three species in cultivation, *C. fastigiata* from the Himalayas, *C. tetragona* from Lapland, and *C. hypnoides* from Lapland and North America. Until their requirements are perfectly understood they are not easy plants to grow, but when success is attained the plants are to be numbered amongst the choicest Alpines for the rock

fastigiata, and they are not produced so freely. The growth is very free, and if the stems are pegged down they root quickly. This plant produces its little white, bell-shaped flowers in April, about three weeks before its Himalayan relative.

C. hypnoides is a creeping, moss-like plant bearing solitary, drooping flowers on somewhat long stalks. This species is not in cultivation at Glasnevin. *C. F. Ball.*

THE ROSARY.

ROSES IN BRICK PITS.

THE very interesting article upon "Roses in Frames," which Mr. J. T. Strange contributes to the *Rose Annual* for the present year reminds me of the grand Teas and Noisettes that used to come from the Messrs. Mitchell, of Piltown, near Uckfield, during the early 'seventies. Some readers must still remember that this firm was noted for Teas and Noisettes, which exhibited the most perfect development. Few of these were grown in the open, but most of them in brick pits. As we occupied those nurseries for several years after the retirement of the old firm,

walls of the more shallow pits, while in the body of the pit were the best Teas and Noisettes of that date. The names of some of those varieties linger in my mind yet, especially *Souvenir d'Elise Vardon*, *Anna Olivier*, *Devoniensis*, *Caroline Kuster*, *Comtesse de Nadaillac*, *Mme. Bravy*, *Marie Van Houtte* and *Niphetos*.

The lights were merely used as a shelter during winter and when the growths were tender. But they were very useful in keeping the flowers clean. The Roses were mulched after the first main crop; never at the time of starting.

Doubtless some may think such pits and the plants in permanent position were not used to the best advantage, but that would not be the impression of those who saw them. Besides, at that time there was not such a wide choice of hardy Teas, and there were no Hybrid Teas.

I have penned this note in confirmation of Mr. Strange's article upon the culture of Roses in frames. But Messrs. Mitchell's plants were permanently planted. *A. Piper.*

PLANT NOTES.

RHODODENDRON VEITCHIANUM.

THIS beautiful *Rhododendron*, concerning which *T. A. G.* enquired on p. 339, is, when raised from seed, exceedingly variable in the crimping of its petals, and occasionally an individual plant may be seen in which the flowers are perfectly smooth. Such being the case, it is possible that the smooth-edged flower referred to may be that of *Veitchianum*. This plain-edged kind is sometimes met with in nurseries as *R. Veitchianum lævigatum*. That this last can be raised from the best type I have proved. I self-fertilised a particularly fine, crispate flower, and the seedlings showed a considerable amount of variability. Some were equal to the best form of *R. Veitchianum* I have seen; others had narrower segments, whilst in some the edges were smooth. I discarded those with smooth-edged flowers. When the plants were young they also varied considerably in habit, some being more bushy than others. Those of neat, free growth produced, as a rule, the poorest shaped flowers, the massive, crispate blooms being, in most instances, borne by plants of a straggling character. As they grew up this undesirable feature gradually disappeared, and the plants ultimately became handsome bushes. In *R. Veitchianum* the flowers are not borne in a compact truss, but as a rule three or four are produced in a loose cluster. A notable feature, apart from the crisped edges of the flowers, is the thick wax-like texture of the petals, for which reason the blooms remain in perfection longer than most *Rhododendrons*.

Despite the desirable qualities of *R. Veitchianum*, it has not been much employed by the hybridist. The best-known varieties descended from it are *exoniense*, whose other parent was *R. ciliatum*; and *Forsterianum*, raised by Herr Otto Forster, the parents being *R. Veitchianum* and *R. Edgeworthii*. *W.*

CLARKIA ELEGANS AS A POT PLANT.

I KNOW of nothing more graceful or beautiful for the conservatory than *Clarkia elegans*. A few seeds should be sown in 3-inch pots in the first week in January, and the seedlings thinned out to three in a pot. Later, the three plants should be potted into a 6-inch pot, placing the pots in a cool-house. The plants will begin to flower in the last week of April, and continue to bloom for about six weeks. I recommend sowing again at a later date for succession. I have plants with growths varying from 3 to 6 feet in height, with numerous side shoots, and carrying hundreds of flowers. *Clarkia elegans* can be had in a great variety of colours, and the seeds are cheap. *J. Herdman, Under Fell Gardens, Westmoreland.*



FIG. 168.—CASSIOPE FASTIGIATA FLOWERING AT GLASNEVIN: FLOWERS WHITE.

or bog-garden. They appear to like a shady position and a moist, peaty soil that is well drained; stagnant moisture and drought are alike harmful. The happiest plants in the Royal Botanic Gardens at Glasnevin are planted on the flat, where they are shaded by a north wall, and are never exposed to the sun until it begins to wane.

C. fastigiata is a beautiful, free-flowering plant about 9 inches high. The flowers are solitary, white and bell-shaped, not unlike an *Andromeda*. The five segments of the corolla are recurved and show the pink centre and curious awned stamens like the *Arbutus*. The leaves are imbricated in four rows and have white membranous margins: they overlie one another so closely that they completely clothe the stem. *Cassiope fastigiata* was figured in the *Bot. Mag.*, t. 4796, from a plant growing at Glasnevin. That specimen was raised from seed collected in the North-Western Himalayas, where it is said to be fairly abundant at an elevation of 12,000 to 13,000 feet.

C. tetragona is a more common, but less beautiful, plant. The foliage has a more grassy-green colour and the stems are more branched; the flowers are about half the size of those of *C.*

a brief description of the pits and the culture adopted may prove of interest.

The pits faced due south, and were sheltered on the north, east and west by high hedges. At that period few cultivators believed the Tea or Noisette Rose to be so hardy as many varieties have since proved. The pits were constructed in the same manner as the old pine and other brick structures, but they had no water pipes, and were not heated artificially. Two of them had a back wall about 4 feet in height, falling to 3 feet in front. Below these were two more with a 3 feet back wall and sloping to the front in proportion. The lights were of the ordinary type, but glass was not used in such large squares, and the bars were much wider. I mention this because it afforded shade that is seldom found in modern pits, the sun only reaching the plants for a very short time from the same direction. So much then for the pits. The plants were all planted out. I never saw a pot plant in that nursery during the time the Messrs. Mitchell were there. The back walls were occupied in all four pits, and some of the finest blooms of *Marechal Niel* I have ever seen came from those walls. Catherine Mermet, *Souvenir d'un Ami* and others were used on the

HARDY WATER LILIES.

WATER LILIES exhibit considerable diversity in the form and colour of the flowers, while the character of the growth is varied enough to meet the requirements of every taste. While recognising the merits of *Nymphæa tetragona* for the smallest areas, there can be no question that the capacity of Water Lilies for ornamental planting is greatest when presented on a large scale, and, if possible, in a natural lake where the surroundings are treated as belonging to the scheme of water gardening.

In the matter of cultivation it is an advantage if a large body of water is available, because the necessary temperature is more readily secured. A moderate inflow of water is desirable, as a larger volume entering at one time would cool the main body rapidly and check the development of the plants.

Natural lakes should be carefully cleared of all water-weeds before planting, and every precaution taken to secure a clean start with the *Nymphæas*. The best rooting medium is the rich,

it is indigenous to certain parts of New Jersey. *N. tetragona*, also of very small habit, is a native of the Himalayas. It has white flowers, but the variety *Helvola* is pale yellow. The plants already mentioned succeed in water 9 inches in depth, and are most suitable for shallow basins, tubs or pools. Of medium growers, the forms of *N. Laydekeri* and *N. odorata* are most generally useful, one group furnishing those colours in which the other is singularly deficient. In the *Laydekeri* group, *fulgens* and *rosea* are the brightest colour forms, the former having crimson-purple, cup-shaped flowers and bright red stamens, and *rosea*, pale pink flowers passing to a deeper shade with age. *Lilacea* produces medium-sized flowers in which rose, lilac and pink are curiously blended; it is one of the earliest to flower. *Purpurata* has the largest flowers of this group; these are coloured bright red and have deep orange-coloured stamens.

N. odorata, the "White American Pond Lily," produces most graceful flowers, some 5 inches in diameter, composed of narrow-pointed petals. Among the varieties, that named *Exquisite*

and *Sphærocarpa*, and in English as the "Swedish Water Lily." It comes into flower about the third week in May, and is generally over by July; it succeeds best in ponds of moderate depth and flowers freely where the roots are restricted; on opening, the flowers are a fine shade of pale pink, becoming curiously mottled with age and ultimately exhibit a deep magenta colour. *Frøbellii* is an improved form of the "Swedish Water Lily," and one of the best dark kinds; the flowers are deep crimson with orange stamens.

The best dark-coloured Water Lilies include *Frøbellii*, with *sanguinea*, a beautiful red flower of medium size and orange-red stamens; *Wm. Falconer*, a new American introduction, having flowers 7 inches across and of a deep crimson-purple, the stamens being bright yellow; and *atropurpurea*, the deepest colour of all and most distinct.

The medium-coloured kinds include *Ellisiana* (see fig. 169), a plant of vigorous growth and utmost freedom when in flower. The blooms are composed of broad-pointed petals mottled with reddish-crimson, the stamens being orange-red.



FIG. 169.—NYMPHÆAS IN LOUGH GARDENS, LINCOLNSHIRE. *N. ALBA. ROSEA* IN THE FOREGROUND; *N. ELLISIANA* AT BACK.

natural mud, but where this is absent, an excellent substitute is prepared by mixing three parts of good stiff loam with one part each of rotted manure and sand. The soil is deposited on the bottom of the pool in the form of a flat mound, and the plant introduced, having its crown emerging from the apex. Where it is impracticable to lower the water level in order to plant, *Nymphæas* may be planted in baskets in the ordinary way and lowered into the desired positions; the roots get through the wickerwork, and the latter presents no obstacle to their future development. Comparatively few species of hardy *Nymphæas* are cultivated in gardens: most of the plants are hybrids of garden origin. The flowers are characterised by great size and rich and delicate colours, while the sulphur, yellow or orange-coloured stamens form a conspicuous inset and are strikingly suggestive of some fine flagree work in gold. The dwarfiest Water Lily is *Nymphæa odorata minor* (syn. *pumila*), a variety having very small leaves and pretty star-shaped flowers, some 3 inches across;

is a deep pink flower of perfect form, standing clear of the water; the stamens are bright yellow. *Rosea* (see fig. 170) is a plant of medium vigour, with glistening petals of a clear rose colour. *Sulphurea grandiflora* is a form of sulphurea, and the largest-flowering variety in this section; the flowers are composed of long, narrow petals of a soft yellow colour, and are produced freely.

N. caroliniana is a natural hybrid between *N. odorata* and *N. tuberosa*. The flowers are composed of slender, pointed petals, pale pink towards the points but deeper in colour at the base. In the variety *perfecta* the flowers are semi-double and of the richest shade of flesh-pink, being altogether one of the loveliest of Water Lilies.

The forms of *N. Laydekeri* are among the earliest to flower, from the middle till the end of May according to season; those of *N. odorata* rarely flower until June. Among the greater Water Lilies, *N. alba*, the "British white Water Lily," is widely distributed; the best-known form is *alba rosea* (see fig. 169), also known as *Caspary*

Fulva has starry, rose-tinted flowers that deepen to red with age. In *Robinsonii* the pointed petals give the flower a star-like appearance; the colour is a mixture of red, purple and orange, varying in degree according to the age of the flowers.

N. gloriosa is a massive flower some 7 inches in diameter, of great fullness. Although the plant makes vigorous growth, it spreads but slowly; the flowers are bright red, tinted with pale rose at the points of the petals; are large and double; the stamens being reddish-orange. The flowers float on the water.

The most popular group of Water Lilies is that raised by the distinguished Frenchman, Mons. Marliac, and which bears his name. They are marked by extreme vigour and freedom of increase, great substance of petal and purity of colour. The latter character is most conspicuous in the forms *carnea*, *rosea*, and *chromatella*, and even in *igneae*, the colour is more uniform over the petals, and also more constant than is the case with many of the coloured Water Lilies. *N. Marliacea albida* produces massive

white flowers 7 to 8 inches in diameter; the petals are of great substance and stand clear above the water; the stamens are bright yellow. Carnea is a flower of delicate colouring; the soft flesh-pink is deepest toward the base of the petals and it imparts a warm glow to the centre of the flower. Chromatella produces flowers of a soft lemon-yellow, the stamens being paler. Flammea has dull red flowers, the petals being lighter toward the points. Ignea produces deep purple-red flowers with apricot-coloured stamens. Rosea is a deep pink form of carnea, and one of the loveliest of this group. The forms of Marliacea are deepest in colour on opening and become paler as the flowers age.

Further good subjects include colosseae, this being massive in leaf and flower; the latter are pale flesh-pink, the stamens being lemon-yellow. N. Gladstoniana also produces very large, pure white flowers of great substance and some 8 inches across, standing clear of the water. The species N. tuberosa is a rampant grower and is best represented in gardens by the variety Richardsonii, a form of moderate vigour having double pure white, globe-shaped flowers. William Doogue is an American seedling of marvellous beauty; the flowers are large and of a glistening white except for a faint suffusion of pink that marks the base of the petals and gives to the flower a silvery sheen. Thomas Smith, Walmsgate Gardens, Louth.

NEW GARDEN WORMS.

It is always gratifying to be able to throw light on doubtful points, particularly to establish the accuracy of a pioneer, whose work is certain to be criticised more or less severely. When rare species of plants or animals are under discussion it is easy to assume that a writer has been care-

material would be forthcoming. I had occasion during the week before Easter to visit Bridlington, and while there turned up another specimen of the annelid, or a closely-related variety; and I feel that it is possible for me now to bring it before the notice of those gardeners who are following these questions with interest.

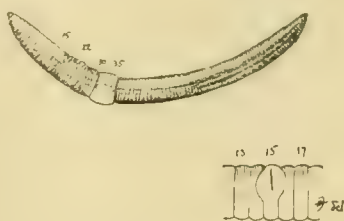


FIG. 171.—OCTOLASION GRACILE.
($\frac{1}{2}$ natural size.)

15, male pore; 22, papillae; 30-35, girdle and tuberculae.
[The male pore is also shown natural size.]

Erley described two closely-related species of earthworms under the names *Octolasion rubidum* and *O. gracile*, and stated that he had found the former species at Woolwich and in Hungary. For some years no one seems to have seen the species, and Beddard, in his *Monograph of the Oligochaeta*, was content to follow Rosa, and give *O. gracile* a place, while regarding *O. rubidum* as a variety. Later, when Ribaucourt in 1896 studied the Lumbricid fauna of Switzerland, a little fuller light was thrown upon the subject. Ribaucourt found two specimens of *O. rubidum* in gardens at a height of 1,600 metres in the Bernese Jura, and refers to *O. gracile* as if he were acquainted with it, but considered it a subspecies of Rosa's *Allolobophora profuga*; Ribaucourt elaborates Erley's description of *O. rubidum*, but says

The male pore is situated on the 15th segment, and the papillae extend over one-half the adjoining segments 14 and 16. On the ventral surface of segment 22 are well-marked papillae when the worm is perfectly adult. Similar papillae are found on the 26th segment of the common earthworm (*Lumbricus terrestris*), and are in all probability connected in some way with the spermatophores. The girdle covers the segments 30 to 35. Dorsally the segments are so closely fused that it is impossible to see the line of separation, but the girdle is saddle-shaped, and leaves the ventral surface unaffected. Hence it is possible to see each segment clearly on the under surface. The tubercula pubertatis form a band near the ventral margin of the girdle. The setae follow the arrangement usual in this group, but the tail is somewhat differently shaped.

The dorsal pores are so conspicuous that one involuntarily thinks of *Eisenia rosea*; but in that species the pores are remarkably large on the girdle, while in *O. gracile* they are quite invisible in the girdle and begin between 11 and 12, or possibly between 10 and 11, as is the case with *profuga*. In nearly all the examples of *profuga* (or *studiosa*) which I have examined, the girdle is divided into two equal parts by a deep suture on the ventral side, but no such division takes place in the present species (see fig. 171).

The prostomium cuts about one-half the first ring, and instead of the Y-shaped groove which is often found on the underside of the prostomium there is a simple I-shaped one. These grooves really correspond with a special arrangement of the muscles, and are modified to enable the worms to grasp their food firmly, or to help them to seize leaf stalks and similar objects which they may wish to drag to their burrows. I should judge that we may expect this species to occur in gardens along the eastern side of the country, where it may possibly take the place which is occupied elsewhere by *profuga*.

Since the foregoing was written, my suspicion has been confirmed by the receipt of a further specimen from the East of Scotland, where it was found by Mr. W. Evans, of Edinburgh.

I quite agree with Erley in separating *Octolasion*, with its eight rows of setae, from *Allolobophora*. It has not seemed necessary that I should dissect the worm in order to ascertain the number of spermathecae, but I shall do this when new material is secured, as the species will be included in the *Monograph of British Oligochaeta*, upon which I am working for the Ray Society. Hilderic Friend, St. Asaph, Great Malvern.

CULTURAL MEMORANDA.

PLUMS.

It is most desirable, when summer pruning and training Plum trees, to lay in a good supply of young wood at intervals all over the trees, so long as there is space for perfect development. I have seen good crops of fruit produced by spurs on older branches, but the best results are obtained from a succession of young wood. We have very good crops of fruit on several of our trees, and in most cases the best are produced on shoots one and two years old. For the present it is desirable to keep the foliage clean and free from insects, to select suitable shoots and train them neatly to the walls or wires, pinch back foreright, and remove any ill-placed growths. Plum trees, like many other kinds of fruit, will not fruit satisfactorily on thick wood, so that root-pruning early in autumn may, in such cases, be necessary. There is much good to be obtained from feeding the roots after the fruits have been gathered where the crops produced have been heavy. A heavy crop of fruit, coupled with dryness at the roots, so frequently experienced in the case of wall trees growing on a light, porous soil, induce weak growths that are only capable of producing weak flowers incapable of setting fruits. H. Markham, Wrotham Park Gardens, Herts.



FIG. 172.—NYMPHÆA ODORATA ROSEA. (See p. 380.)

less or has allowed himself to be misled, and if years elapse before his discovery is confirmed, it is no unusual thing to allow a certain amount of suspicion to attach to names which really deserve honour.

Some years ago a careful investigator into earthworm fauna visited this country, and made certain records which have been regarded as doubtful because the species have been rarely seen. I am especially glad, therefore, to be able to say that recent research shows that Erley is a leader who is thoroughly to be trusted. Some months ago I received from the Curator of the old Chelsea Physic Garden a single specimen of a garden worm which had not previously been recorded for Great Britain. I did not, however, describe it, as I hoped that in time further

little of *O. gracile*. It is the latter species which I have found, and as it is new to Britain, and differs in some particulars from Erley's type, I propose to give my own diagnosis and diagrams.

Octolasion gracile, Erley, as found in England, is a stout worm which somewhat resembles *profuga* and *studiosa*. But it may at once be distinguished from them by its colour. In this respect it closely resembles *caliginosa*, but from this well-known species it may be readily separated by observing its dimensions. Alive it extends to 10 cm., but in alcohol it contracts to 70 or 80 mm., and is about 6 mm. in diameter in the widest parts. It does not emit a yellow fluid as *studiosa* does from the tail, and it is wanting in the steel-blue and bright yellow colour of that species.

WILTON HOUSE, SALISBURY.

(Concluded from page 362.)

PASSING by Holbein's porch, from whence a view of the residence is seen through a vista of trees, a path leads through sylvan scenery to a bridge over the river Nadder. The delightful character of this part of Wilton could hardly be exaggerated. The banks of the stream are planted with Willows, raised by Lord Russell, and the wild vegetation which reaches to the water's edge is the home of numerous waterfowl. The scene has been made the more enchanting, by diverting the stream around an island formed of 6,000 loads of mud obtained from the river's bed. The Bamboo, and especially *B. Metake* and *B. nitida*, thrives almost uninjured, forming large colonies. The path along the waterside affords a view of noble trees in the distance, including several of

tralis (a plant of curious appearance), *Calycanthus floridus*, and *Abies pumila* were noticed as we passed, the ground being gay with Irises, Aubrietias, Arabis, *Ramondia pyrenaica*, *Androsace sarmentosa*, Scillas, Tulips, and other spring-flowering plants.

The lawns that stretch in front of the mansion are extensive and timbered with Cedars principally. There are specimens planted by kings, queens, and emperors, but first place must be given to the veterans that are said to have been planted in 1640 (see fig. 173). This date would make them the oldest in the country and older than the Enfield Cedar, the earliest accepted date of this tree being 1662.

Only three of the original trees remain, but the Cedars at Wilton number between 300 and 400, and most of them are descendants of those first planted. One magnificent young tree about 50

Standing on the bridge, a fine landscape opens up on the park side, with herds of deer grazing beneath the fine old trees. The park is four miles in circumference. Up stream, amongst the clumps of shrubs, patches of *Cornus Mas* in flower provide masses of gold here and there. Leaving the water, and crossing the lawn, a notable tree of *Paulownia imperialis* is passed. There is a beautiful tree of *Quercus Cerris* planted by the Czar Nicholas of Russia in 1817 when Grand Duke Nicholas. Other fine trees are *Sequoia gigantea*, *Cupressus macrocarpa*, *C. nootkatensis*, and *Pinus parviflora*, one of the finest specimens in the kingdom. The air is fragrant with Penzance Briars, and everywhere the grass is studded with flowers; a scheme of "wild gardening" through which devious paths lead sometimes to a clearance where a "sweet-scented" garden or a rosary has been made, with



FIG. 172.—WILTON HOUSE FROM THE RIVER NADDER.

the celebrated Cedars, and one of *Sequoia sempervirens* over 80 feet high. Another bridge gives access to a garden of Roses, with rockwork planted with Ferns and a collection of hardy-flowering plants and spring-blooming bulbs. But this rockery is not comparable with another situated on the other side of the path with a pool of water that becomes so warm in summer time as to permit of tender *Nymphaeas* and other choice aquatics being cultivated. The pool is planted with *Nymphaea purpurata*, *N. Froebellii*, *N. Gladstoniana*, and *N. exqu岸ite*. *Aponogeton distachyon* flowers early in the year, and the double *Caltha palustris* adorns the banks, sending up its glowing blooms in profusion. The rockery contains a very large selection of Alpines, with Conifers of dwarf growth, *Ericas*, *Ledums*, *Bamboos*, *Cotoneasters*, and other suitable shrubby species at points of vantage. *Retinospora obtusa Crippsii* with golden foliage, and other pretty shrubs such as *Picea excelsa* var. *Remontii*, *Genista praecox*, *Colletia bicktonensis*, *Rubus aus-*

years old was planted by the late Czar Michael. Other tree planters at Wilton include King Edward VII., Queen Alexandra, and the Emperor of Germany.

In a nursery are healthy young Cedar trees raised by Mr. Challis, from seeds obtained on the place, and a note referring to some that were sent to the Emperor William II. of Germany will be found on p. 349.

Notable as are the Cedars, even more remarkable is a tree of *Quercus Ilex*, unrivalled in its proportions by any other evergreen Oak in the country. It has a girth of 18 feet at a few feet from the ground, the spread of branches measuring 90 yards in circumference. The massive branches are secured by chains in all directions, but the growth is healthy, and, to all appearances, the tree will last for many years. Beneath its shade Sir Philip Sidney is supposed to have composed *Arcadia*. The river flows by the lawn, and is spanned by a remarkable bridge, built in the Palladian style by Inigo Jones (see fig. 172).

paths of stepping stones or bricks intersected with low-growing Alpines.

Sometimes the path follows the river, or stepping stones may lead the more venturesome across the water to the opposite bank, where fresh scenery is equally delightful.

The river forms one of the boundaries of the fruit and vegetable gardens, a wide border of hardy flowering plants skirting the bank. Finding some difficulty in obtaining a plentiful supply of water in the kitchen garden, Mr. Challis constructed, many years ago, a water-wheel from an old wool-carding machine, the motive power pumping the water from the river to the highest quarter of the garden. This has served its purpose well, and is still in working order. Beyond replacing the original wooden dam with one of masonry, the wheel exists in the form it was originally constructed.

There are nine acres of fruit and vegetable gardens with numerous glass structures. A new range of houses is in course of erection from

designs by Mr. Challis. The Cattleya and Dendrobium houses and some others have been completed, and they are connected with a corridor. The corridor is kept gay with plants in flower, and, being cooler than the houses, visitors can enjoy the view of the Orchids and other plants in bloom without entering the hotter structures. Pines, Melons, Strawberries, Grapes, Peaches, and other exotic fruits are forced. In the middle of the kitchen garden is a meteorological station, the records having been tabulated by Mr. Challis for a period of 49 years.

The condition of the gardens in all departments is a credit to Mr. Challis. His reputation as a fruit-grower was won many years ago at the exhibitions, but although he does not exhibit to any great extent nowadays, he is still as keen a fruit-grower as ever. His service at Wilton has extended for more than half a century, and his predecessor, Mr. Brown, was gardener there for 33 years.

NURSERY NOTES.

MAY-FLOWERING TULIPS AT SURBITON.

TULIPS of one kind or another have been flowering in the garden for weeks past, and in the greenhouse from the opening days of the year, but in the Cottage and the Darwin Tulips is seen the highest excellence of the flower, and their blooming is a fitting termination to an extended season of flower beauty.

These May-flowering kinds are easy to cultivate, delighting in good, loamy, yet well-drained and moderately rich soil, and a long season of rest each year. Drying winds or scorching sun will spoil the flowers, hence a position neither too wind-swept nor sun-smitten must be chosen for their planting. In Messrs. Barr & Sons' nursery at Surbiton they are planted by the acre in the open field, where they are screened from cold winds by closely-wattled hurdles. In the private garden, a more sheltered position will frequently present itself, and may always be employed advantageously.

It is possible, by carefully selecting the varieties, and by early and successional planting, to have Darwin Tulips in bloom during the whole of the month of May. For example, Glow and Ant. Roozen, of rose shades, and two of the earliest varieties, were, by late planting, still in good condition at Surbiton at the beginning of June, and these were not alone in this respect. Of other notable varieties in bloom, Bacchus may be mentioned, with its rich, deep-purple flowers on yard-long stems. La Tulipe Noire, the darkest-coloured of all, is one of the tallest growers. Zulu is also very tall and handsome; whilst Sultan has glossy-black flowers developed fully 3 feet high. Rev. H. Ewbank is distinct, and the shades of heliotrope and grey are most attractive, appearing at its best, however, when seen under cover. Prince of the Netherlands and Pride of Haarlem, both of rose colouring and of exceptional brilliancy, are among the giants of the race. Loveliness, Clara Butt, Queen Wilhelmina, of blush-rose shading and one of the latest of these to flower; Mr. Farncombe Sanders, rose-scarlet, and in every way a great Tulip, were other good and notable sorts. Apart from the Darwin Tulips, there were many beautiful varieties of Cottage Tulips, and these have their own distinctive merits. Some varieties, such as Bouton d'Or and the rich crimson-red Elvira, are unique in the strength and richness of their colouring. We never remember to have seen Bouton d'Or more finely developed or of richer colour. To some, perhaps, the comparatively short cups would not appeal very strongly, but surely none could resist its golden colouring, its sturdy vigour, or its splendour when seen in a mass. There are others with long, tapering, and often acutely-pointed petals, now splashed, sometimes margined with a different colour shade, and these produce pretty effects in the garden and

are valuable as cut blooms. The quaint Parrot or Dragon Tulips, with deeply-notched petals, even if appealing to a smaller number of admirers, are of very great interest.

TULIPS AT COLCHESTER.

THE increasing popularity of May-flowering Tulips is readily demonstrated by a visit to a hardy plant nursery such as that of Messrs. Wallace & Co., at Colchester. "Darwin" and "Cottage" Tulips have supplied a long-felt want in the garden. To see these Tulips in the exhibition tent or hall, viewing their flowers at close quarters, admiring their goblet-like forms or graceful outline, now strong in the richness or intensity of their self colours, or elegantly margined and lined, is to get but a passing glimpse of their beauty. It is when growing in the garden or nursery that the waist-high plants appeal most forcibly, where the mas-

Parisian (yellow), Mrs. Moon and Gesneriana lutea. The whole was bordered with Red Standard and Inglescombe Scarlet. Taken as a whole, the effect of the arrangement was excellent, and on grass such a design would show to even greater advantage.

Many novelties in these Tulips have been exhibited by Messrs. Wallace for the first time this year. Of these, Great Dane, an enormous flower of orange-red tone; Coralie, a most graceful Tulip, not unlike La Merveille in colour, and having recurving tips; Claudius, orange scarlet, and Norman Knight, with bold, orange flowers having a clear yellow base, are among the finest. All these belong to the "Cottage" group. Other good varieties of this type are Beauty of Bath, with long, acutely-pointed flowers of soft-yellow colour, flushed on the outer sides with reddish-purple; and Ellen Willmott, the long and elegantly-formed flower being of two shades of yellow.



FIG. 173.—ONE OF THE CELEBRATED CEDARS AT WILTON HOUSE.

(See p. 382.)

sive flowers and broad, glaucous-coloured leafage completes the picture. It is in the garden, too, where the good resulting from the free use of one colour is seen, and where the weakening effects of inharmonious colour shades, frequently unavoidable in the exhibition hall, finds no place. That colour contrasts may, however, be employed advantageously was abundantly seen during a brief tour of the Kilnfield Gardens, where Messrs. Wallace have arranged an Italian garden design and planted it in its entirety with these Tulips. The large central portion of this design was composed of the tall and stately variety Zulu, a nearly black flower, surrounded by such heliotrope-shaded flowers as Erguste and Rev. H. Ewbank, the receding waves or circles containing Inglescombe Yellow, Loveliness and Inglescombe Pink, Fra Angelica, Negro and Sultan, the nearly triangular corners being filled with

low, which have a beautiful and refined appearance. Of other yellow-flowered varieties may be mentioned Primrose, Scented Gesneriana lutea, and G. l. pallida, also highly fragrant. Gesneriana lutea is late in flowering and very tall in stature. Leghorn Bonnet, Mrs. Moon, Orion and Primrose Beauty are others of yellow shades, while Golden Spire, which merges into palest orange, has the finest thread of carmine colour on the margins of its petals. Walter T. Ware is also a magnificent and bold Tulip, the massive flowers of richest orange over-topping even those of Bouton d'Or.

The Darwin class includes Ixis, crimson-scarlet; Claude Guillot, vermilion-red; Henner, crimson-maroon; Melicette, soft lilac; Pride of Haarlem, reddish-scarlet; and Duchess of Westminster, a rare variety akin to Clara Butt, but of deeper rose colour.

FOREIGN CORRESPONDENCE.

HECHTIA.

RESPECTING the note by W. W. on *Hechtia argentea*, in which he asks if anyone has tried to cultivate a *Hechtia* under other conditions than those of a tropical house, the following facts may be of interest.

For many years I have cultivated four species of *Hechtia* from Mexico, namely, *H. Besseriana*, *H. Schottii*, *H. argentea*, and *H. montana*. Three of them I sent last year to England, and *H. montana* I have still in my garden. They are completely hardy here, although our temperature falls as low as 5° Cent. (about 10° Fahr. of frost). The plants are in pots which are plunged in sunny places. During the summer they are given frequent applications of manure, and under this treatment they soon make good specimens, but, being young, they have not yet flowered. *H. montana* is planted in a rockery, among Agaves, Yuccas, and Opuntias, and it has done very well, although, on November 25, 1909, the miniature shoots of Orange trees were cut by frost. I believe that the *Hechtias* can be cultivated in the warmer parts of England in the open garden, and in the northern districts in a cool house. Of course, the leaves developed under such conditions will be less long than those on the beautiful specimen shown in the Supplementary Illustration in the *Gardeners' Chronicle*, May 21. The same may be said of Agaves, which appear quite distinct if cultivated out-of-doors and in warm houses.

Many Cactaceæ plants are very hardy. *Echinocactus Pfeifferi*, *texensis*, *Monvillii*, *Sellowii*, and *submammulosus* are cultivated in the open ground, exposed to frost, snow, and rain during the whole winter, and now they are covered with flowering buds. *Echinocereus*, *Mammillarias*, and *Echinopsis* are equally successful. I believe that in Cornwall, Isle of Wight, and some parts of Ireland they would prove just as hardy. My whole stock of Cactaceæ is planted in the rockery at Ravello. *Willy Müller, Nocera, near Naples*. [Will Mr. Müller kindly send us a leaf of the plant of *H. argentea*, and tell us something of its origin?—Eds.]

The Week's Work.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Roses.—These plants in various aspects are now producing vigorous growths. The climbers on poles or other supports will need the strongest growths secured, but do not give too severe attention to this detail, or much of their natural beauty will be marred. Aphides seem particularly prevalent this season, and frequent syringings with extract of Quassia or other insecticide must be carried out until the flowers commence to expand. Quassia is particularly effective, and one of the best preventives. Its use does much to check attacks of mildew. Frequent aeration of the soil and sprinkling with artificial manure will stimulate growth in all Roses, and a mulch may be applied now that the ground is in a moist condition. Should there be any blanks in the beds, pot plants of the particular variety should be planted with care and a little additional attention bestowed upon them in the way of shading and syringing. Late-planted Roses are sometimes difficult to establish, especially in soil that is not altogether suited to their requirements. Two interesting species are now in flower in the shrubberies: *Rosa alpina*, a striking subject for clothing a pole, producing single, rose-coloured flowers, and a plant easily recognized by the absence of spines; and *Rosa spinosissima* var. *altaica* the "Scotch or Burnet Rose," a striking bush, producing large, single, creamy-white flowers in great profusion.

Shrubs.—There being such an infinite variety of beautiful shrubs now in flower, perhaps a list of the more striking kinds may be of interest. Amongst the Brooms, which are contributing a

fine floral display just now, are *Cytisus scoparius*, with its varieties *Andreanus* and *sulphureus*; *C. kewensis*, *C. decumbens*, *C. monspessulanus*, and *Genista pilosa*. The Syringas, or Lilacs as they are commonly known, include *S. persica*, the "Persian Lilac," and its cut-leaved form, *laciniata*; also the many garden varieties of *S. vulgaris*, such as *Charles X.*, *Congo*, *Marie Legraye*, *Souvenir de L. Späth*, of the single kinds; and *Alphonse Lavallée*, *Charles Joly*, *Mme. Lemoine*, *Mathieu de Dombasle*, and *President Carnot*, of the doubles. The Weigelas or Dier-villas should be included; there are excellent varieties of *D. rosea*, including the variegated-leaved form that is so attractive just now. The Viburnums include *V. tomentosum*, with its sterile variety *plicatum*, one of the most beautiful of shrubs, and *V. Sargentii*. The best garden Spiræas are represented by *S. nudiflorum*, *S. chamaedrifolia*, and *S. media*; *Rhododendrons*, including *R. (Azalea) molle* in variety, together with the many handsome forms of *Cratægus*, are beautiful subjects planted as isolated specimens either in woodland or park. Many others might be mentioned, but those I have named will, if planted largely, produce a good effect, and they are not at all fickle as to their cultural requirements.

General work.—Annuals sown in the open ground will need careful thinning, and the planting of those raised in boxes must be done without delay. Tulips which have passed out of flower should be lifted and laid out to ripen; the varieties must be carefully labelled so that they are kept true to name. Plants of half-hardy climbers raised from seeds, such as *Ecceomocarpus scaber* and *Mina lobata*, will require planting out. These are effective when trained to stout stakes or tripods in the mixed borders. Newly-planted trees and shrubs should, if necessary, be pruned back to where new growth is commencing; in most cases these will be greatly benefited by syringings overhead in hot, dry weather, and liberal mulchings, but avoid having an excess of moisture at the roots, a mistake often made with newly-planted trees. Neat sticks should be placed to border Carnations and Pentstemons, whilst *Phloxes* and *Asters*, that are now growing freely, will need further tying. Roll the paths whenever the gravel is in a moist condition. Attend carefully to the watering of pot plants, and whilst not allowing any to become dry at the roots, bear in mind that newly-potted plants require little moisture until they produce roots freely.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Summer pinching and training.—Most fruit trees will now need frequent attention in regard to pinching and training the shoots. The growths upon Pear cordons against walls should be pinched when they have made six or seven leaves, pinching them to within about four or five leaves from the main stem or spur. The leading growth should be left its entire length for the present, but if the trees have not covered the space allotted them, such leading shoots that are growing strongly may be shortened some weeks hence. Later, when the uppermost buds of the shoots now stopped commence to push into growth, these secondary shoots should be pinched to one or two leaves. By carrying out these operations gradually, they may be done without causing the trees any serious check. The effect of such pinching is to admit sunlight and air both to the fruits and shoots. In some gardens, from pressure of work and other causes, the pinching of cordon trees is neglected. The shoots are allowed to grow nearly their full length, and, later in the summer, these are cut away, the effect being that the presence of so much wood in the growing season tends to over-stimulate root action, causing the trees to become too vigorous, and later, when they are pruned, a severe check is imposed upon the trees at a time when the fruits should be swelling freely. The operator should commence pinching the most forward shoots as soon as they are ready, and the same treatment should be followed in regard to pyramidal Pear, Apple, and Plum trees, modifying the treatment according to the habit of the different varieties. When pinching has been completed on the wall trees, the leading shoots and those required for extension should be trained in the desired positions, making them secure against winds. Wall

trees should be syringed daily in fine weather with clear water.

The Pear and Cherry tree Sawfly (*Eriocampa limacina*).—This pest is usually most destructive to Pears and Cherries, but it occasionally attacks Apple, Plum, and Damson trees. It appears to increase mostly in hot, dry seasons. The fly usually makes its appearance early in June, but sometimes a little earlier if the weather is warm. The female deposits her eggs on the underside of the leaves, and the larvæ are hatched in about 10 days. At first they are white, but afterwards become of a slimy, dark-green colour and repulsive shape. Soon after the larvæ are hatched, they eat their way through the leaf, and commence to eat away the upper surface, denuding the leaves of all the soft tissue until they are skeletonised. Trees affected with this pest should be syringed vigorously with arsenate of lead or soluble paraffin. The arsenate of lead wash, being poisonous, must not be used later than five or six weeks before the fruit is gathered. Where bad attacks have been suffered, it is a good plan to apply a liberal dressing of soot or quicklime about the roots in autumn, lightly pricking these materials into the soil with a garden fork. If a similar dressing is applied again early in spring, good results may be expected to follow.

FRUITS UNDER GLASS.

By G. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Strawberries.—For affording the latest pot-Strawberries, the variety *Waterloo* is exceedingly useful. In the case of this variety not more than three fruits should be left to ripen on each plant. In order to prolong the supply until the ripening of *Strawberries* out-of-doors, the latest pot-plants should be grown as cool as possible, merely protecting them from frosts and cold winds, but removing the lights from the frames on fine days.

Alpine Strawberries.—Plants which were raised from seed early in the year may now be moved into 5-inch pots for autumn fruiting. A similar compost to that recently recommended for perpetual-fruited varieties will suit these Alpine Strawberries, and the potting should be done firmly. In order to encourage a free growth the plants may be left in the frame for a few weeks after potting, shading them from sunshine and syringing the foliage late in the afternoon. As soon as the roots are fairly established in the fresh soil, the plants may be removed to a position out-of-doors, where they will be shaded from sunshine during the middle of the day.

Plum trees in pots.—Trees bearing ripe fruits must be watered with extreme care or the fruits will be liable to split, and nothing but clear water must be applied to them. Ventilate the house freely, using both top and bottom ventilators and leaving plenty of air on during the night. Examine the trees each day, and gather those fruits which are ripe, laying them out carefully in a shallow box or lid, and covering them with cotton-wool. If the fruits are placed in a well-ventilated, cool fruit-room, they will remain in good condition for some time.

Out-door borders.—Out-of-door fruit borders require regular supplies of water during the summer, and liquid manure should be given wherever it is likely to have beneficial results. A mulching of partly-decayed manure will serve a useful purpose in conserving the moisture, and thus it will encourage the growth of surface roots.

Tomatoes.—Plants in full bearing need frequent supplies of liquid manure, alternating this with clear water. Encourage root-action by applying occasional top-dressings of fresh loam and sprinklings of artificial manure. Remove the lateral growths and shorten the leaves sufficiently to expose the fruits to sun and air. This latter operation is often over-done and defoliation carried out under the impression that the plants are benefited by the treatment, but it is impossible for a plant to produce a good crop of fruit unless it is well provided with healthy foliage. If white fly is troublesome, close the house in the evening and vaporise with a nicotine preparation. Seeds should now be sown to provide plants for fruiting during autumn and winter. Seedlings from this sowing should be cultivated in cool conditions. They should be potted in the fruiting pots sufficiently early to enable them to fill the pots with roots before the plants have to be placed in heat.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman,
Royal Gardens, Windsor.

Tomatos.—Plants bearing full crops, and especially plants which are growing in pots, will require frequent applications of plant-food, and these should be afforded either by sprinkling the surface of the soil with artificial manure or by watering with liquid obtained from the farmyard. The fruits should be cut immediately they have developed colour, placing them in a cool fruit-room where they will keep in a good condition for a much longer time than if left on the plants. Succession plants should be given an abundance of air during the setting of the fruits. Remove all side shoots, and after sufficient fruits have set, the tops of the plants may be pinched. Afford liberal supplies of manure water. Later plants require repotting, and they should be kept near to the glass. Make another sowing for raising plants to fruit in autumn, and as soon as the seedlings are large enough they may be potted up and placed out-of-doors in a sunny position. Stakes may be placed to them, and the stakes secured to a wire. If the weather is favourable, the plants will set their fruits freely, and they may be removed to a house at the end of the summer.

Leeks.—The Leeks raised from seeds sown in March for the main crop should now be ready for planting-out. If the ground was trenched and manured early in the year, it will only require to be forked over before drawing the drills at 18 inches apart and 3 to 4 inches in depth. The Leeks should be planted at 1 foot apart by means of an ordinary garden dibber. Only a small quantity of soil should be allowed to fall amongst the roots, the remainder being afterwards worked in with the hoe, so that nothing may retard the swelling of the stems. As the season advances, the plants should be given liberal supplies of liquid manure from the farmyard in preference to any other stimulant. Plants that were put out a month ago in the trenches should have the soil frequently stirred, and they may be given a good watering. Leeks are gross feeders, and, therefore, benefit from large quantities of weak liquid manure.

Brussels Sprouts.—Continue to plant out Brussels Sprouts as opportunity arises. Brussels Sprouts should be allowed 3 feet between the rows and 30 inches between each plant.

Cauliflowers and Broccoli.—Autumn Giant Cauliflower and Early Broccoli should be planted on rich ground allowing a space of 30 inches between the plants. Liberal supplies of water should be given the plants until they are established, but afterwards little attention will be needed beyond hoeing and keeping the ground clear.

Chicory.—A good sowing of Chicory should be made as soon as possible, in an open situation, in light, rich soil, sowing the seeds in drills drawn at 15 inches apart and 1 inch deep. If the soil is dry at the time of sowing, the drills should be watered in the evening before sowing is commenced, the effect being much better than may be expected from a watering applied to the surface of the bed after the seed has been sown. When the young plants are a few inches high, they may be thinned to 8 inches apart, and the Dutch hoe should be worked between the rows at frequent intervals. Slugs being particularly fond of young Chicory plants, the beds should be dusted frequently with hot lime, applying this early in the morning.

Seakale.—Young plantations of Seakale now require thinning. Each plant should be examined carefully in order that the growths may be reduced to one or two of the strongest crowns on each plant. Seakale needs a moist situation, and should be given liberal supplies of water in dry weather. Later in the season, a dressing of artificial manure may be applied.

Mushrooms.—An open shed with a northern aspect affords the best situation for the culture of Mushrooms in summer. When a sufficient quantity of manure has been prepared, it should be trodden tightly together, and allowed to remain a day or two before the spawn is inserted, which operation should take place when the temperature of the bed is at about 80°. The spawn should be inserted 2 inches deep in the manure, and when the temperature of the bed has fallen a few degrees, the surface may be covered with 2 inches deep of fresh loam. This top-dressing should be

made perfectly tight, and a covering of straw placed over the bed to hinder evaporation. In a few weeks the covering should be removed, and a gentle watering given if this is found necessary, replacing the covering material when this has been applied. At the end of six weeks from the time of spawning the Mushrooms should begin to show, when careful attention must be given to syringing the walls and other surfaces with rain-water. A few mats may be nailed in front of the shed to prevent winds from drying the atmosphere.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence,
Bart., Burford, Surrey.

Thunia.—As the flowers commence to open, these plants should be removed to a more cool and airy house, and it will generally be found that those which open in the cooler atmosphere last longer than those which open and are kept in the East Indian house. Where it is found desirable to increase the stock of any of the following varieties, *T. Marshallii*, *T. Bensoniæ*, *T. Brymeriana*, *T. Veitchiana*, *T. alba*, *T. candidissima*, and *T. pulchra*, the present is the best time to do so. Remove any of the back pseudo-bulbs that are fresh and plump, cutting them off at the joints into lengths of about 4 to 6 inches and inserting them firmly as cuttings into small, well-drained pots in a mixture of chopped Sphagnum-moss, small crocks, and coarse silver sand. Place these cuttings in the warmest house and keep them fairly moist. When fresh roots push forth, grow the plants as quickly as possible; they need not be disturbed until after the resting period, when new growth commences.

East Indian House.—In this house such plants as *Aerides*, *Saccolabium*, *Angraecum*, *Renanthera*, *Sarcanthus*, *Trichoglottis*, *Cleisostoma*, *Mystacidium*, *Arachnanthe*, *Aëranthus*, and other Vanda-like plants, now developing leaves and roots, should be given as much water as will serve to keep the Sphagnum-moss on the surface in a growing condition. Possessing aerial roots, they do not need large quantities of water to pass through the compost, but great humidity in the house, therefore, a moist state of the atmosphere must be maintained till their growth is completed. The majority of these plants, like *Phalænopsis*, delight in plenty of sun heat, but warmth from the hot-water pipes, if used to any great extent, quickly debilitates them. On warm, bright days, the fire-heat must be kept as low as possible, and, in order to preserve a moist atmosphere, the top ventilators must be kept closed, affording the necessary amount of air through the lower ventilators. When both top and bottom ventilators are open at the same time, the air dries too quickly. When the weather is bright we close the ventilators about 4 p.m., but earlier if the skies are dull; the house is then thoroughly damped down and the temperature allowed to rise as high as possible. Where the glass is covered with stippling, the blinds are pulled up about one hour later, when the sun is shining full on the roof. For several months to come a temperature of about 70° should be maintained, and, early in the morning, should the temperature through rain or cold weather fall below 65°, no damping should be done until the pipes are made warm and the proper temperature is obtained. Nearly all these plants produce large, fleshy roots, which are very agreeable in a young state to cockroaches and similar pests. These insects must be constantly sought after and destroyed, or irreparable damage will be done. We keep these pests in check by close examination of their haunts at night, and by using "Beetlecut," sprinkling it about the house according to the directions given with the preparation.

Dendrobium.—The young growths of the deciduous and semi-deciduous *Dendrobiums* are now developing fast, and the amount of water at the root must be increased, especially where growth is vigorous and roots plentiful. When the plants are growing strong it is advisable to examine them occasionally and tie or loop up the longest of the growths, so that more light and air can circulate freely between the plants; it also gives them a tidy appearance. *Dendrobiums* of the evergreen section, as *D. thysiflorum*, *D. densiflorum* and *D. Farmeri*, which have passed out of bloom, should be kept cool and rather on the dry side until growth has recommenced. Strong-growing species like *D. calceolus* are now

producing their new growths, and those that need repotting should be given attention at once. Afford them ample rooting space and plenty of drainage material. If the plants are potted firmly in the *Osmunda* and *Polypodium* mixture they will last for several years without repotting. After potting, tie up the tallest of the pseudo-bulbs to strong, neat stakes, which will assist to keep each plant firmly fixed in its position. Place the plants at the warm end of the house, and when they are well-rooted apply copious waterings till such time as the terminal leaf is completed.

Other species.—There are numerous other *Dendrobiums* which may also be repotted at this time, including the well-known *D. Phalænopsis*, *D. bigibbum*, *D. superbiens*, *D. stratioides*, *D. Parishii*, *D. rhodopterygium*, *D. macrophyllum*, and *D. Bensoniæ*.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Westwood, Yorkshire.

Cyclamen. Seedling plants of *Cyclamen* are ready for repotting into their final pots, which may vary in size from 5 to 7 inches in diameter. The compost should consist of good, fibrous loam two parts, and peat and leaf-mould one part each. The leaf-mould is best obtained from Oak leaves and a small quantity of well-decayed sheep manure may be added after it has been dried and rubbed through a fine sieve, also sufficient broken charcoal and coarse silver sand to keep the compost porous. Do not press the soil too firmly about the roots, or apply much water until the roots have established themselves in the fresh compost. It is a good plan to plunge the pots to their rims in tan bark or similar material. The plants must be shaded from sunshine, and they should be sprayed lightly with clear water several times in the day. Ventilation must be given during the hottest part of the day, but care is necessary to prevent the plants suffering from cold winds or draughts. Keep the plants growing steadily in a good light, free from bright sunshine, and preserve them from attacks of insect pests such as *Aphides* and *thrips*. If either of these pests put in an appearance, the plants should be vaporised with one of the nicotine compounds.

Primula.—Chinese *Primulas* are now making rapid growth, and they need to be potted off singly into small pots, when they should be placed in a position near to the glass, preferably in a frame pit provided with a cool base formed with ashes.

Hippeastrum.—The flowering season of the *Hippeastrum* (*Amaryllis*) is now almost passed, and the plants are making new growth. The leaves may need some support, which can be afforded by placing two stakes in each pot and carefully looping up the leaves with raffia tape. *Hippeastrums* usually succeed best if the pots are plunged in a bed of tan bark, and an occasional top-dressing with some approved chemical fertiliser is given them. Syringing may be carried out early in the afternoon, and the frame or house should be closed whilst it still contains a fair amount of sun-heat. When the bulbs have completed their growth, a cooler treatment will be found necessary and less water, it being important that the bulbs should mature.

Caladium.—These handsome-leaved plants are most serviceable for decorations indoors when they are in small pots, but under these conditions they do not last long. If a few specimens are required for autumn, several plants should be repotted into larger sizes, and when these larger pots have become filled with roots, occasional applications of diluted farmyard manure should be applied.

Edging plants.—*Panicum variegata*, whose proper name is *Oplismenus Burmannii* variegata, and *Fittonias* are most useful as edging plants in the plant stoves. Fresh stock is easily raised by inserting from four to six cuttings round the edges of small pots and keeping them close and shaded for a week or two afterwards.

The conservatory.—Such plants as will be required for flowering again another year must not be neglected at this busy season. They need hardening out-of-doors in a suitable position, and whilst most of them require frequent waterings, some will also need to be trained.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Letters for Publication. as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matter which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 13—

United Hort. Ben. & Prov. Soc. Com. meet.

WEDNESDAY, JUNE 15—Yorkshire Gala (3 days).

THURSDAY, JUNE 16—Linnean Soc. meet.

FRIDAY, JUNE 17—Richmond Royal Horse Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—58.8°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 8 (6 P.M.): Max. 75°; Min. 58°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 9 (10 A.M.): Bar. 30.0; Temp. 73°; Weather—Sunshine.

PROVINCES.—Wednesday, June 8; Max. 74° Chelmsford; Min. 56° Scotland S.E. coast.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Liliums, Hardy Bulbs, &c., at 1; Palms, Plants, Bays, Ferns, &c., at 3; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY, THURSDAY AND FRIDAY—

Absolute sale of the whole of the Orchids, Greenhouse Plants, &c., at the Keyfield Nurseries, Watson's Walk, St. Albans, by order of the Trustee *re* F. G. Young, in bankruptcy, by Protheroe & Morris, at 1.

FRIDAY—

1,000 Imported Cattleya Mossiae, also Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The necessity for the spraying of fruit trees of all kinds, in order to check the attacks of parasitic insects and fungi, is becoming recognised by all growers who are anxious to secure the greatest yields of fruit of the highest quality.

It is, however, essential that the application of sprays should be made with considerable caution, or serious damage to the foliage and fruit may occur. In the worst cases where the necessary materials are mixed in unsuitable proportions the damage may be apparent in a day or two, but even in the case of careful applications injury sometimes arises, and in such instances the mischief may not become evident until two or three weeks have elapsed.

Perhaps the most likely materials to do damage are paraffin and arsenical washes, but soft-soap, liver of sulphur and Bordeaux mixture are not always free from blame. In America, where spraying has become a common routine operation in the management of fruit plantations, injury from the use of Bordeaux mixture is of frequent occurrence, and Mr. Salmon, in the current number of the journal of the Board of Agriculture, has drawn attention to similar trouble with this fungicide, after application to apple trees in Kent, where it was employed for the purpose of checking fungus diseases.

If this mixture is applied in large amounts, and in the form of too coarse a spray, purplish brown spots appear on the leaves, which ultimately give rise to holes: in the milder cases the tops and edges of the leaves become scorched and ragged, and in others the whole leaf may turn yellow and die. Small black or brownish specks appear upon the young fruits, and later in the season develop into corky, russet-coloured patches, which disfigure the Apples and greatly reduce their market value. Unfortunately, little is known about the exact causes of these Bordeaux spray injuries, and much research is needed to determine the condition which will render spraying an absolutely safe operation. The strength of the solutions used, the atmospheric condition at the time and subsequent to the application of the fungicide, the stage of development of the plant, and certain physiological peculiarities of the variety, are factors which affect the problem.

The solution, perhaps, of most satisfactory nature for fungi infesting the apple orchard, is that known as the 3-3-50 formula, consisting of 3 lbs. copper sulphate, 3 lbs. of stone lime, and 50 gallons of water, the stronger 6-6-50 solution being reserved for use in winter, when the trees are at rest.

The most serious injuries, so far as damage to foliage is concerned, are observed after early sprayings in Spring, when these are followed by rain during the next few days. The likelihood of damage may be reduced by careful attention to the kind of nozzles used to produce the spray. Only those machines should be used which produce the finest mist, and the leaves should not be allowed to get so wet that the liquid drips from them. Some varieties are known to be more resistant to the damaging action of Bordeaux mixture than others: it would be well if growers would carefully note and put on record their experiences with particular kinds. In treating the more delicate sorts, especially where spotting of the fruit by spraying is to be feared, it may be found advantageous to use lime-sulphur washes, although many cultivators consider these rarely so efficient in destroying or warding off parasitic fungi as those which contain copper sulphate.

OUR SUPPLEMENTARY ILLUSTRATION.—

There are astonishing sights to be seen by the botanist and gardener who visits for the first time that narrow strip of country which extends from Hyères to Genoa, and is warmed by the southern breezes from the Mediterranean, while it is protected from the cold of the north by the great wall-like range of hills which separate the Riviera from the rest of France. It has a climate of its own, mild and sunny in winter, hot and dry in summer, neither purely insular nor purely continental; and there is plenty of rain to satisfy the needs of most plants. Gardening is a favourite pastime of the leisured residents in the Riviera, and a remarkable collection of plants of all kinds, tropical as well as sub-tropical, and even temperate, has become established there. Palms, Cordylines, Tree Yuccas, Euphorbias, Cacti, Bamboos, Agaves, and many arboreal plants from Australia, California, and the Himalayas, are so abundant as to give the place a distinctly tropical appearance. Bougainvillea is as plentiful almost as Ivy is here, and Tea Roses revel in the sunshine. It was there that the great Bur-

mese rose, *Rosa gigantea*, first produced its flowers, and the Japanese Persimmon fruits as truly in the orchards as the Apple does in England. The most abundant trees are the Californian Fan Palm, *Washington filifera* and the Canarian Date, *Phoenix canariensis*. Our illustration is a view in a Riviera garden. The Palm is *Cocos plumosa*, the two large Cacti are *Cereus peruvianus*; there is a group of Palms in the distance; a massive-headed Dragon tree; the smaller plants being chiefly such succulents as *Opuntia*, *Aloë*, and *Sansivieria*, &c. Another view from a Riviera garden is reproduced in fig. 174. The prominent feature in this is an exceptionally well-fruited specimen of *Opuntia Ficus indica*. By its side is an *Agave*, with a *Cordylina* at the back.

LINNEAN SOCIETY.—The next meeting will be held on Thursday, June 16. A paper entitled "Male Sterility in Potatoes, a Dominant Mendelian Character, with Remarks on the Shape of the Pollen in Wild and Domestic Varieties," by Dr. REDCLIFFE N. SALAMAN, will be communicated by Mr. ARTHUR W. SUTTON.

SIR GEORGE L. HOLFORD, K.C.V.O.—Horticulturists, and Orchidists especially, will note with pleasure that Lieut.-Col. GEORGE L. HOLFORD, C.I.E., finds a place in the King's Birthday Honours List, having been promoted to be a Knight Commander of the Royal Victorian Order.

EAST BURNHAM PARK CRICKET MATCH.—

Following their usual custom, Mr. HARRY J. VEITCH and Mrs. VEITCH have sent a communication to the chairman of each of the Royal Horticultural Society's Committees inviting the members to pay a visit to East Burnham Park on Thursday, July 7. A cricket match will be arranged for those who wish to play cricket. Members desirous of accepting the invitation are requested to send in their names to the secretaries of the various Committees.

THE LOUIS VAN HOUTTE CENTENARY.—

We are informed that since we referred to the sixth list of donations to the fund raised in connection with the celebrations of the Centenary of LOUIS VAN HOUTTE, a further sum of £68 has been received by the Ghent committee.

HONOUR FOR MONS. NONIN.—

Those of our readers who know M. AUG. NONIN personally or by name will be interested to learn that the President of the French Republic has recently conferred upon him the Cross of Chevalier de la Légion d'Honneur. M. NONIN has rendered many services to French horticulture, and is chiefly known in this country for his work in connection with the Chrysanthemum.

CALCEOLARIAS AT ABERDEEN.—

Some of the finest Calceolarias in the Aberdeen district have been grown this year by Mr. J. Yule, gardener to Mrs. MACQUEEN, Fae-me-well, Aberdeen, and the group of about 50 plants has been greatly admired. Two of the finest were exhibited in the window of Messrs. W. SMITH & SON, Exchange Street, Aberdeen, and they received much notice.

PEACH CULTURE IN ONTARIO.—

Encouraged by the success which has attended their efforts in sending their fruit to all parts of Western Canada, the Niagara growers talk of supplying the British market this year. Plenty of suitable land is said to be still available, and very good prices are being realised for Peach farms within the Niagara Belt. A ten-acre Peach farm, near Bamsville, recently realised no less than 12,000 dollars. A trial consignment of Peaches was sent to England in October last, and the fruits were commented upon in our issue of October 23, p. 282.

MR. W. MILES.—The Oxfordshire County Council has appointed Mr. W. MILES as assistant lecturer and demonstrator in horticulture for the county. Mr. MILES entered Wisley Gardens as a student, being later engaged on the garden staff. For some years he has filled the office of secretary to the Floral Committee.

CHENOPodium AMARANTICOLOR.—In a recent issue of the *Bulletin de la Société d'Acclimatation de France*, M. BOIS refers to the trials made last year to test the adaptability of this plant to the climate of France. In warm countries it grows freely to a height of 3 or 4 feet, and gives a large amount of excellent leafy produce, which is used in the same way as Spinach. In the southern parts of France it grows satisfactorily, and ripens seed out-of-doors; but for the latitude of Paris and northern portions of the country it would appear best to grow it in succession under glass, the young plants being used after they

Into each box samples of different species of Collembola were introduced. The tops of the boxes in some cases were covered with a sheet of glass, and in others with a piece of wood. After the experiments were completed the soil and diseased bulbs were carefully examined, and, apart from fungi, no other pests were found, but in all cases the Collembola had increased largely in numbers. In a contribution to the April number of the *Journal of Economic Entomology*, Mr. COLLINGE writes as follows: At the time it did not occur to me to inquire "where did the fungi come from?" But since then this same soil has, in part, been used to pot bulbs in and the remainder was thrown on to the garden. In the pots and in the garden where this soil was placed there is now arising an abundant crop of different fungi. As none of the fungi has previously been noticed in the garden and does not now occur, excepting in this restricted patch and in the pots, I think I am

I have proved to be actually so by washing various species in water and then examining the liquid, after the removal of the insects; in such case spores of fungi were particularly numerous.

THE NEILL PRIZE IN HORTICULTURE.—We are informed by the Council of the Royal Caledonian Horticultural Society that the NEILL prize for the biennial period, 1908 to 1910, has been awarded to Mr. ALEXANDER MACMILLAN, formerly gardener at Trinity Cottage, Edinburgh, where he raised a number of hybrid Rhododendrons. It will be remembered that the NEILL prize commemorates the late Dr. PATRICK NEILL, and is awarded to distinguished Scottish botanists or cultivators.

PUBLICATIONS RECEIVED.—*Royal Botanic Gardens, Kew*, Bulletin of Miscellaneous Information. (London: Darling & Son, Ltd.) Price 2d.—*Cultures de Serres*, by P. Pacottet and J. Dairat. (Paris: J. B. Baillière et Fils.) Cloth covers, price 4s. 2d.—*Thirty-First Annual Report of the Ontario Agricultural and Experimental Union, 1909*. (Toronto: Ontario Department of Agriculture.)

COLUMBINES.

THE time of the Columbine is once more with us. The time to sow, and the time to reap the reward of previous sowings. The young seedlings are just coming into bloom, and there is no greater interest for a gardener than watching his seedlings come into flower. I always think that the time of the Columbine marks, like that of the Daffodil, a distinct period in the season of hardy flowers, and when Daffodils and Columbines are over nothing comes afterwards which quite fill their places. The Aquilegias constitute a very interesting and beautiful genus of hardy herbaceous plants, and they are one of the oldest English flowers. Shakespeare refers to them—

"I am that flower, that Mint, that Columbine."

Love's Labour Lost, Act IV., Sc. 2.

"That's Fennel for you and Columbine."

Hamlet, Act IV., Sc. 5.

They are very easily cultivated, and their graceful foliage and lovely flowers amply repay any care in their cultivation. Nothing exceeds the beauty of a border of Aquilegias, varying as they do in colour and form, and no plant has lent itself more kindly to hybridisation. Many of the pure species are extremely beautiful, but, as a rule, they lack the robustness of the hybrids. To make a plant popular it must have vigour of constitution, and beauty of flower, and many of the finer species of Columbines cannot be said to have both these qualities. *C. grandulosa*, *cœrulea*, *vulgaris*, *Skinneri*, &c., have all been used as parent plants, and it is through years of careful hybridising that the lovely hybrids of to-day have been obtained.

To have really good Aquilegias, seeds must be sown yearly. Seedlings are always the best, the largest and most vigorous plants, and they produce the finest blooms, both in quantity and quality. Plants become worn out from many causes—bad winters, dry summers, and from being allowed to seed too freely. Many growers sow just after the seed is ripe, but this entails keeping the plants in a frame all the winter, and pricking them out into boxes before planting them in the border. They are not plants that stand shifting well, so they should be planted where they are to grow. Leaf-mould, or very old, rotted manure suits them; but it is better to have the bed prepared for them in the beginning of winter, and left rough dug. Spring sowing is best for amateurs. The seed takes some considerable time to germinate, and sometimes comes irregularly. The plants are not faddy as to soil or situation, but respond liberally to good treatment. *I. S. E.*



FIG. 174.—OPUNTIA FICUS INDICA FRUITING IN A RIVIERA GARDEN.

(See p. 386.)

have grown 6 or 8 inches high, at which time they are tender and of good flavour. Planted out during summer in a sunny place in the garden where the soil is rich, the plant grows to a height of 2 or 3 feet, and gives a correspondingly large yield of useful green produce.

COLLEMBOLA AS INJURIOUS INSECTS.—In a communication read at the Oxford meeting of the Association of Economic Biologists, Mr. WALTER E. COLLINGE, M.Sc., drew attention to the part that various species of Collembola play as injurious insects. He stated that during the previous 12 months very careful observations were made upon a series of common species which fully established the fact that the Collembola are distinctly injurious to Orchids, numerous bulbs, Beans and Peas. The method adopted was as follows: Shallow boxes, containing about 4 inches of moist soil, were used, and into these perfectly healthy bulbs and Beans were placed.

justified in concluding that the spores were originally introduced by the Collembola. Dr. BULLER in his recent work states: "The gills of expanded fruit bodies are frequently visited, not only by fungus gnats, but also by springtails (Collembola). . . . Some fruit bodies of Polyporus squamosus, which were growing on a log and had not yet become fully expanded, were infested with small black Collembola. There were as many as 50 to the square inch, and each one occupied a hymenial tube which was just wide enough to hold it. The springtails (genus Achorutes), infesting Stropharia semiglobata and some other species of Agaricinea, were found to contain spores in the midgut," and it is well known to students of this interesting order that large numbers are found in such habitats. Hence these minute insects, quite apart from their own depredations, may prove a source by which various plant diseases may be introduced by spores which they carry upon their bodies. This

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CRATÆGUS PUNCTATA AND C. ORIENTALIS.

Continuing the accounts of exceptionally fine specimens growing in this garden which I have sent you on previous occasions, I now give you the measurements of two species of *Cratægus* which were planted by my grandmother 65 years ago. They both stand isolated on grass, and are shapely and well-grown specimens. *C. punctata* is 35 feet high and 130 feet in circumference of the branches and 5 feet 4 inches in girth of stem at 3 feet above ground. At the date of writing it is a sheet of bright, white blossoms on all sides, and if these set properly it should in autumn be covered with bright-red, Cherry-like fruits. *C. orientalis* is 15 feet 10 inches high, 76 feet in circumference of the branches, and 2 feet 5 inches in girth of stem 3 feet above ground. It will be noted that though of the same age and growing on similar soil, it is much smaller than *C. punctata*, and has indeed the appearance of having reached its full growth. Although it is the slowest-growing Thorn which I know (and I am acquainted with a great many), it is certainly one of the handsomest in cultivation, its special merits being its markedly glaucous foliage and its amber-pink fruits. It is not an easy plant to obtain from the trade, for nurserymen when asked for it have a way of supplying *C. tanacetifolia*, a faster-growing, but less glaucous plant of inferior quality. *Vicary Gibbs, Aldenham House, Hertfordshire.*

BERBERIS STENOPHYLLA.—The interesting remarks by the Hon. Vicary Gibbs and Mr. Slade give us some idea as to the large size this beautiful evergreen will grow, and such specimens, when in flower, are very beautiful. But how seldom we find *B. stenophylla* used as an ornamental hedge plant! It is very effective in hedges, and might be planted with advantage in place of the Yew, Laurel, and Privet. *W. H. Clarke.*

LUCY GRIEVE PEAR.—Referring to the lamented death of Lord Chelsea, and of his burial at Culford Hall, an evening paper retails the pathetic story told by Dr. Hogg in his *Fruit Manual* of the origin of this Pear:—"The seed was sown in a flower-pot by a little girl, the daughter of Mr. Peter Grieve, then head-gardener at the Hall. When the plants were large enough, they were planted out into the open ground, but ere the first of them bore fruit, in 1873, the little maid was in her grave." Mr. Grieve sent fruits to Dr. Hogg, who liked them so much he named it Lucy Grieve, in memory of the child. Dr. Hogg described it as a delicious Pear, having the texture of flesh of Marie Louise. It is significant that this Pear, in spite of the pathetic interest which attaches to it, is not now found in fruit catalogues; indeed, turning to the report of the National Pear Conference held at Chiswick in 1885, it is noteworthy that not only is the variety omitted from the list of Pears suitable for Suffolk, but Mr. A. F. Barron describes it as worthless. Possibly it never got into commerce. *A. D.*

KEEPING LATE GRAPES.—In these days when so much glass-covered land is occupied with vines for furnishing late Grapes, there is not the same interest in this subject there used to be. I well remember, some 40 years ago, your old correspondent, the late Mr. W. Miller, "chronicling" the fact that he had succeeded in "belting the year round with a glorious garland of Grapes." He was then at Combe Abbey gardens. About that time I saw the Combe vineries, and noted the splendid crops of fruit, especially in the houses of Early Hambro' and Lady Downes. Much interest was then shown in fitting up rooms in private gardens for the better keeping of late Grapes. One of the first of these rooms was at Heckfield Place in Hampshire, then owned by the late Lord Eversley, who was, within his means, a liberal patron of horticulture from many standpoints. It is questionable if, in the history of gardening, two more congenial spirits ever met as employer and employed than this nobleman and his enthusiastic gardener, the late Wm.

Wildsmith. The room in question was improvised from some existing buildings near the potting shed and bothy, and was a great success. The point aimed at was a dry base, with as little walling exposed to the outdoor atmosphere as possible. Provision was made for supplying artificial heat when required in winter, so that the temperature would not fall below 48° to 50°. The next most successful room for this purpose I have seen is at Byram Park Gardens in this county. It is fitted up somewhat similar to the one at Heckfield, and answers its purpose quite as well. Mr. Taylor, the gardener, thinks that his success in keeping late Grapes is partly attributable to the thin Indiarubber stoppers put on each bottle so as to prevent evaporation of the water. It is found that small, well-ripened bunches keep the best. *H. J. C., Uleskelf, York.*

CARNATION LADY HERMOINE.—I enclose a photograph of a plant of *Carnation "Lady Hermoine"* (see fig. 175), growing in a 7-inch pot and carrying 37 of its beautiful, salmon-pink flowers. The average diameter of the blooms is 3½ inches. One would almost expect small flowers from a plant nearly three years old and carrying such a



FIG. 175.—CARNATION LADY HERMOINE AS CULTIVATED IN UNDER FELL GARDENS.

large quantity of blooms, but in both substance and size they are equal to the flowers of young plants carrying only two or three. I have tried this variety for planting outside, but Carnations will not succeed out-of-doors here. *J. Herdman, Under Fell Gardens, Burton, Westmoreland.*

PRIMULA ANISIACA.—Being particularly interested in our British Primulas, my attention has been drawn to Mr. Reginald Farrer's note on p. 294. Doubtless our beautiful wild flowers are contemptible things from the point of view of the average gardener, whose ideal of beauty seems to be flowers of gaudy colouring and a size comparable with that of a Cabbage, but fortunately there are some gardeners who take (1) an intelligent æsthetic interest in flowers and appreciate them for their natural beauty, unspoiled by the deforming efforts of the florist, nurseryman and experimenter, and (2) a scientific interest in their natural hybridisings and developments. "That ridiculous series intervening between *P. veris* and *P. vulgaris*"—to quote Mr. Farrer—may be beneath contempt horticulturally, but it is most fascinating scientifically, when studied in its native habitats with a due regard to the surrounding circumstances. He gives no authorities for his names, but if his *P. anisiaca* is Stapf's, then it has nothing to do with *P. veris*, being a hybrid between the Primrose (vulgaris) and the

true Oxlip (elatior). From his reference to elatior further on, it looks as if his plants really were *anisiaca*, premising, of course, that he knows *P. elatior*, which very few people do, I think, the common or hybrid Oxlip (*veris* × *vulgaris*) being usually mistaken for it, although there is practically no resemblance in any particular; the umbellate form of the Primrose is also confounded with it. Mr. Farrer is also wrong, apparently, in his reference to *P. pannonica*. The *pannonica* of Kerner is a synonym for *P. veris* var. *canescens* (Opiz), and is, therefore, merely a variety of the common Cowslip, and not "another species (sic) of the same race (sic)" as he says, meaning another form of the common or hybrid Oxlip. *C. Nicholson.*

I am sorry my remarks on *P. anisiaca* should be held to convey any contempt for our "beautiful wild flowers," for which, in point of fact, I have a special cult. However, there are also beautiful wild flowers that hail from other lands, and not necessarily on that account to be despised. It was in the hope (being at the time far from authorities) that *P. anisiaca* might prove such a treasure, that I originally obtained it from the St. Petersburg Botanic Garden, and mere gardeners will understand, though august scientists may not, one's disappointment on flowering an unknown name which proves to cover something not far removed—except to the prying eye of science—from an ordinary Cowslip or Primrose. As to the nomenclature, I am afraid I cannot claim a complete ignorance as to *P. elatior*; *P. pannonica* and *P. anisiaca* came to me, as I say, under these names, from St. Petersburg; and in such matters, when botanical gardens send me plants or seeds, I have too often a simple and childlike faith in the accuracy of their descriptions. That faith, I admit, has had to survive many rude shocks; it is possible that it may ultimately succumb. However, it still at present lingers; and, having received *P. anisiaca* on good authority, I plead guilty to sitting humble and happy in the hope that it is *P. anisiaca* that I have received. As to my sentence—"another species of the same race"—it relies excessively, perhaps, on the general intelligence of the reader, and might perhaps be more terminologically exact if I had not been so certain that no one would fail to read it as meaning another form of the common or hybrid Oxlip, as, indeed, Mr. Nicholson himself has understood it. So all is well; for intelligibility is the one criterion of literature. *Reginald Farrer.*

ACACIA ON FRENCH RAILWAY BANKS.—English visitors to France may have noticed that the railway banks are in many places planted with Acacia, with a view to utilising the ground. In a recent conversation with one of the leading French nurserymen, I learned that the railway companies find, however, that this will have to be partly discontinued, and I noticed that, on the Northern railway, the Acacias had been cut to the ground quite recently half-way up the banks. The reason my informant gave for this was that in the autumn the leaves of the Acacia, falling down on the rails, led to the wheels slipping or glissading, and so impeding the pace of the train, although he did not seem to think there was any actual danger involved. *George Paul.*

DOVER HOUSE GARDENS.—I was interested in your account of these gardens and Mr. McLeod (p. 365), as I paid an all too hurried visit to the gardens on May 25. They are remarkable for their "keep," a reputation enjoyed for many years. The condition of the lawns is an especially fine feature, for it would be difficult to find anything but soft springing turf of a close grass texture; not even a Daisy root could be seen. Nowhere have I seen such gorgeous masses of fine Tulip blooms in a private garden. Roses in masses of one sort promise remarkably well, especially the variety Caroline Testout. Climbing varieties, too, on trellises will be a feature ere long if present appearance of growth and healthy foliage may be relied upon. Extensive plantations of Violas in great variety are promising. The kitchen garden is particularly well cropped, and not a weed is to be seen. Under glass there are many fine features. Tomatoes are an especially fine crop in pots. Peaches and Nectarines are most promising. Melon Hero of Lockinge was extra good. Carnations and Codæums are as fine as ever. *E. M.*

DIMINISHING FRUIT PROSPECTS.—As the fruit-grower makes the round of his orchards, he finds, week after week, a steadily diminishing prospect for fruit. In my article of last week I discounted earlier anticipations considerably, but still left the depiction of the fruit outlook far less gloomy than it has now become. Gooseberries have not further deteriorated, but the proportion of withered bunches of Black Currant blossom is much greater than I thought it was when I wrote last. As for Plums, even the two or three varieties which appeared to be setting half crops have gone off badly, and, taking all varieties together, there will not be a sixth part of an average yield. In the case of Apples, too, the setting on most varieties is extremely disappointing, while Pears are practically a failure, apart from three or four exceptional varieties, which have a small crop of fruit set. Excepting Strawberries and Raspberries, which I do not grow for market, the fruit outlook, taking it all round, is the worst in my experience. Similarly gloomy accounts of deteriorated prospects have come from Evesham, Cambridgeshire, Kent, and Essex. There was a mistake in the last sentence of the first paragraph of my article on "Some Fruit Topics" in the last issue. In giving a possible explanation of the failure of Pear blossom to set, I mentioned that only about two dozen of Clapp's Favourite had set on several rows of cordons, adding "and these are on the side where three rows of other varieties are growing." The word "and" was made to read "although," completely stultifying my argument, which was that Pear blossom had been fertilised only where different varieties are almost touching each other. *A Southern Grower.*

THE STRAWBERRY CROP.—Here on the borders of Cambridgeshire, Norfolk, and Lincolnshire, the Strawberry plants are very strong, and show an abundance of bloom. From the younger plantation—a fine eight-acre piece—to the older three-year-old plants all is satisfactory. Strawing of the surface soil is now general after a thorough hoeing, and in 10 days or so the first fruits will be ready for the market. Our position is rather cold for this district, but our fruits come in well for the mid-June market. *Stephen Castle, Walpole Marsh, June 2.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 7.—The exhibition on Tuesday last maintained the high standard which prevailed before the Temple Show, full use being made of the floor space, even in the annexes. The spreading of the exhibits in these side rooms caused fewer tables to be used in the hall proper, and this gave more space for visitors. The FLORAL COMMITTEE conferred no fewer than 15 Awards of Merit. The chief exhibit in this section was a display of pillar Roses shown by Messrs. T. Rochford & Sons. Hardy flowers and Alpines contributed largely to the general exhibition.

The ORCHID COMMITTEE granted one First-class Certificate and two Awards of Merit. A noteworthy exhibit before the ORCHID COMMITTEE was a collection of 180 paintings, of choice varieties, shown by Miss M. Walters Anson.

The FRUIT AND VEGETABLE COMMITTEE made no award to a novelty. The NARCISSUS COMMITTEE did not assemble, the meetings being suspended until next season.

At the three o'clock meeting in the lecture-room, the Rev. George Henslow gave a lecture on "Survivals among Plants of the Past."

Floral Committee.

Present: W. Marshall, Esq. (in the Chair); and Messrs. Henry B. May, Chas. T. Druery, Jas. Walker, Jas. Hudson, John Green, G. Reuthe, Jas. Douglas, W. Howe, C. R. Fielder, J. F. McLeod, C. Blick, W. Bain, R. W. Wallace, Herbert J. Cutbush, Arthur Turner, Chas. Dixon, John Jennings, Geo. Paul, Chas. E. Pearson, J. T. Bennett-Poë, W. B. Cranfield, W. A. Bilney, W. P. Thomson, E. H. Jenkins, W. J. James, E. A. Bowles, R. C. Notcutt, A. Kingsmill, and R. Hooper Pearson.

ROSES AND CARNATIONS.

Never before have we seen a finer display of pillar Roses than the exhibit shown by Messrs. THOS. ROCHFORD & SONS, Turnford Hall Nurseries, Broxbourne. We have heard this nursery described as a "plant manufactory"; it would not be an exaggeration to state that nowhere else in the world are plants cultivated better. These Roses were superb. The bunches of flowers hung in such dense clusters as to present an unbroken sheet of blossoms. Two arches entwined with Dorothy Perkins were delightful; they could not have been shown better, and the small size of the pots which contained the plants caused general surprise. The varieties were mainly Hiawatha, American Pillar, Dorothy Perkins, White Dorothy Perkins, Lady Gay, Delight, and Newport Fairy. (Gold Medal.)

Messrs. PAUL & SON, Old Nurseries, Cheshunt, exhibited a group of Roses in which popular sorts of pillar varieties were conspicuous, notably the white hybrid musk Snowstorm, Excelsa (the new Wichuraiana variety), American Pillar, Perle des Neiges (white, semi-double blossoms), Jessica (a large bluish Wichuraiana variety), and White Dorothy. Messrs. PAUL also showed ornamental-leaved trees and shrubs. *Catalpa speciosa pulverulenta*, *Quercus concordia*, *Cornus stolonifera* var. *Gouchaultii*, *Acer Negundo californica aurea*—all have handsome leafage. (Bronze Flora Medal.)

Messrs. PAUL & SON, Waltham Cross, Hertfordshire, made a fine corner group with Roses and Bougainvillea Sanderiana. The Bougainvillea was in the centre, with banks of bluish rambling Rose (magnificent) and Tausendschon on either side. Along the front were baskets of Scotch Roses of early-flowering varieties. (Bronze Flora Medal.)

Messrs. G. MOUNT & SONS, Canterbury, again showed a display of Roses very similar to their exhibit at the last meeting and with equally beautiful blooms. (Silver Banksian Medal.)

Mr. W. H. PAGE, Tangley Nurseries, Hampton, set up a pleasing group of trained Roses, *Lilium longiflorum giganteum*, and pink-flowered *Spiræas* (*Astilbes*). They were all well-flowered plants, with healthy foliage, such as we are accustomed to see from this well-known market grower. (Silver Flora Medal.)

Messrs. B. R. CANT & SONS, Colchester, showed vases of garden Roses and a box of magnificent blooms of the fine Claudius variety, of deep-rose colour. Lady Reay, a pink seedling, was also very pretty. (Bronze Banksian Medal.)

E. H. JOHNSTONE, Esq., Burrs Wood, Groombridge, Kent (gr. Mr. A. T. Paskett), showed a remarkably fine floor-group of Souvenir de la Malmaison Carnations, with a few plants of a clove colour for relief. The plants were healthy, sturdy specimens, and finely flowered, apparently all of the Princess of Wales variety. The same exhibitor showed vases of Sweet Peas, having a good display of popular varieties. (Silver-gilt Flora Medal.)

Mr. BLICK, The Warren, Hayes, Kent, showed choice varieties of "Malmaison" and perpetual-flowering Carnations. We noted flowers of Princess of Wales, Soult, Lady Rose, Miss Willmott (a perfect gem, with smooth petals, and sufficiently double to make a good bloom), Baldwin (a Malmaison with confused filling), Nautilus, Outlaw, Mrs. Martin Smith, Sam Weller, Dreadnought, Lieut. Shackleton (of a yellowish-rose tint), and Anthony (cerise and yellow). Besides these, the exhibitor had some older English and American varieties. (Silver Banksian Medal.)

STOVE AND GREENHOUSE PLANTS.

Messrs. JAMES VEITCH & SONS, King's Road, Chelsea, filled the whole of the table they usually occupy, with a delightful exhibit of flowering plants, skilfully arranged to produce the best effect. They displayed several novelties, including a fine *Calceolaria* named Buttercup, the result of crossing *C. Clibranii* and *C. Golden Glory*, the seedling surpassing either of its parents. Their new Zonal Pelargonium White Queen will be welcomed. Their *Streptocarpi*, in batches of distinct colours, were also very fine, and, on the opposite side of the table, they arranged some splendid *Gloxinias*, of which *Acis*, crimson, Snow Queen, Gaer, white, lined with rose-red; *Ovis*, richest crimson, edged with rose, and Faust, crimson, with white edge, are a selection. Other

subjects shown finely were *Lobelia tenuior*, *Kalanchoë flammea*, *Lantanas* in variety, *Primulas* Unique and Excelsior, *Cannas* in batches, and *Exacum macrantha*. The exhibit was completed with trusses of *Rhododendrons* in boxes, *Magnolias*, *Philadelphuses*, and spikes of *Ceanothus thrysiflorus*. (Silver-gilt Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, staged a miscellaneous group of flowering plants arranged in a setting of Ferns. The plants were arranged in panels, with a number of tall Pelargoniums and Fuchsias. We noted *Geranium ardens*, with bright-red flowers; *Verbena Queen of the Whites*, *Abutilon Golden Fleece*; *Heliotrope Lord Roberts*; *Abutilon triumphans*, a fine rose-pink variety; *Verbena Miss Willmott*, and *Marguerites White Perfection* and *Queen Alexandra*. (Silver Banksian Medal.)

THE KING'S ACRE NURSERY CO., Hereford, staged a group of *Heliotropes*, having a very complete collection of this useful bedding subject, including some novelties. (See Awards.) (Silver Banksian Medal.)

A new Ivy-leaved Pelargonium named Rose Queen was shown by Mr. W. R. NEWPORT, Hillingdon Heath, Uxbridge; and a batch of the scarlet *Mme. Crousse* was shown by Messrs. STUART LOW & CO., Bush Hill, Enfield.

Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr. Mr. Bain), showed a plant of *Amorpha phallus Schweinfurthii*, with broad, reddish-brown spathe.

Mr. L. R. RUSSELL, Richmond, showed, embedded in mounds of wood-moss, well-grown plants of *Anæchtochilus Petola*, *Bertolonia Sanderæ*, *Sonerilas*, *Cryptanthus zonatus*, *Smilax argentea*, *Tillandsia Makoyana*, and other stove plants. He showed, also inserted in the mossy mounds, a number of well-fruited potsful of *Nertera depressa*, *Reidia glaucescens*, and *Eranthemum Lindenii*. (Silver-gilt Banksian Medal.)

Mr. GODFREY, Exmouth, showed bunches of blooms of Pelargoniums belonging to the regal, spotted, and decorative varieties, as well as a few Cape species and hybrids with fragrant leaves and small flowers. He was likewise an exhibitor of Oriental Papavers and hardy perennials, and *Amaranthus superbus*, a tender annual with red and sometimes bronzy leaves, good for bedding or for pot culture.

Messrs. STUART LOW & CO., Bush Hill Park Nurseries, showed a miscellaneous collection of plants, including *Metrosideros floribunda coccinea* and *M. f. alba*, *Hydrangea Avelanche* (with pure white bracts), *Gerbera Jamesonii* and some of its hybrids, *Primula Hendersonii*, The Lyon Rose, perpetual-flowering Carnations, including *Princess Juliana* (a new introduction of an orange-pink tint), and a new variety of Pink named *Gloriosa*, 2 inches in diameter. (Silver Banksian Medal.)

Messrs. PEED & SON, West Norwood, exhibited fine varieties of *Streptocarpus* (blue, pink, rose, and white), and a large number of *Gloxinias* (erect-flowering, spotted, and self-coloured). The blooms of these *Gloxinias* were in every case of large size, and the colouring excellent.

Messrs. R. VEITCH & SON, Exeter, showed *Hæmanthus Katherineæ* having flower-heads of 9 inches in diameter, the individual flowers of an orange-crimson tint; *Edwardsia* (*Sophora*) *grandiflora*, *Robinia Kelseyi* (an American species), and *Abutilon vitifolium*. The flowers of this last are violet-coloured and widely expanded. A species of *Aethonia*, with pendant racemes of pink flowers, *Ceanothus floribunda*, *Rehmannia angulata* Pink Perfection (Veitch's, a very good-coloured variety), *Calceolaria Golden Glory* (new), *Weigela Eva Rathke*, and *W. hortensis nivea* (a white-flowered variety). (Silver Banksian Medal.)

HARDY AND ALPINE PLANTS.

Messrs. WM. CUTBUSH & SON, Highgate, London, showed an imposing group of hardy flowers in a well-arranged exhibit. In the centre of the display was a bold batch of *Eremuri* in several species, the most striking being the beautiful yellow *Bungii*. There was also a pretty salmon hybrid of *E. robustus* named *Salmonæa*. At the foot of these was a pool with *Nymphæas*. The remainder of the group was made up with *Poppies*, *Lupins*, *Irises*, *Romneya Coulteri*, *Thalictrum aquilegifolium*, *Pæonies*, and *Anemone sulphurea*. (Silver Flora Medal.)

Messrs. W. ARTINDALE & SON, Lifford, showed *Violas*, of which G. C. Murray (very deep purple with lavender upper petals), Mary

Burnie (primrose, tipped with heliotrope), Lady Knox (pale primrose), Marjorie Barber (deep-purple self), and Mrs. J. S. Brunton (white-edged and suffused with purple) are either new or noteworthy. Messrs. ARDINDALE also showed hardy border flowers, their *Eremuri* and *Primula japonica* being exceptionally good.

Mr. F. LILLEY, Guernsey, showed bulbous flowers, including *Sparaxis*, *Ixias*, and *Irises* in great numbers. The blooms of *I. Gatesii* were notable, the grey ground of the petals and falls being delicately pencilled and dotted. *I. pavonia* is one of the gems of the race, the bright, blue markings on the spreading, white limbs being responsible for the name of Peacock Iris. The *Irises* also included many beautiful vases of *I. xiphoides*. (Silver Banksian Medal.)

Messrs. GEO. BUNYARD & Co., LTD., Royal Nurseries, Maidstone, filled a large table with hardy herbaceous flowers, having a great assortment of *Pyrethrums*, *Lupins*, *Geum coccineum*, *Campanulas*, *Hemerocallis* *Apricot*, *Pæonies*, a dazzling display of Oriental Poppies, *Ixias*, *Irises*, *Aconitum Napellus*, *Heucheras*, and many other garden flowers. (Bronze Flora Medal.)

Mr. M. PRICHARD, Christchurch, Hants, set up an imposing group of hardy herbaceous flowers, with boxes of Alpines. We noticed the beautiful, blue-flowered *Delphinium Belladonna* (in fine form), *Primula Bulleyana*, *P. Littoniana*, *Dianthus alpina superba* (exceedingly pretty), *Onoropodon bracteum* (a handsome-leaved Thistle), *Geum Mrs. Bradshaw* (a double variety of fine red colour), *Betonica grandiflora* (with large, lavender-coloured blooms), *Ornithogalum arabicum*, and some choice *Pæonies*. (Silver Flora Medal.)

Messrs. DOBBIE & Co. showed, from their Mark's Tey Nursery, Essex, splendid flowers of *Aquilegia*, representing a fine strain of this pretty garden flower. The spurs were exceptionally long and the flowers large generally; the colours, of numerous shades, were very clear and soft in tone. (Silver Banksian Medal.)

Messrs. H. CANNEL & SONS, Swanley, were exhibitors of border flowers, such as *Iris germanica*, *I. sibirica*, and *I. orientalis*, in variety; *Lupinus* of a conspicuous character being *L. polyphyllus albus* and *L. p. Triumph*, with distinct-looking spikes of blue and white flowers; *Pyrethrum Beauté de Laeken*, of a crimson and pink colour, *P. Mlle. Benary*, a full spike of blooms of a light pink tint; and *Asphodelus racemosus*. (Bronze Banksian Medal.)

Messrs. THOS. WARE, LTD., Feltham, Middlesex, displayed *Iris macrantha*, a flower having two distinct tints of blue, and being of large size; many varieties of *Pyrethrum roseum*, *P. Panorama* (a pink, double flower), *Nancy* (white, with central florets of a shade of yellow), *Hamlet* (cerise-coloured florets and yellow pappus, single-flowered); *P. La Vestal* (double, pale flesh-coloured), and several others; *Pæonia discordia* (single-flowered, with crimson petals, and yellow anther mass) and *P. Duchess of Portland*. (Silver Banksian Medal.)

Messrs. J. KELWAY & SON, Langport, Somersetshire, were exhibitors of numerous varieties of *Pæonies* and *Pyrethrums*, both double and single-flowered. Of the first-named we may mention *Pæonia festiva maxima* and *P. albiflora grandiflora*, a flower of great splendour, single-flowered, and white. Very beautiful *Pyrethrums* were shown by this firm. The most showy variety was *P. multiflorum*, a double flower, with crimson florets. *Valeriana pyrenaica* has corymbs of small, pinkish-white flowers, the heads of flowers measuring 6 inches in diameter. The table was furnished with an unusual edging of species not often employed for such a purpose. These were *Chrysogonum virginicum*, *Silene alpestris*, *Linaria origanifolia*, *Gnaphalium alpinum*, *Betonica nivea*, *Erysimum cheiranthifolium*, *Delphinium nudicaule*, *Geranium lancastriense*, *Aster alpinus magnificus*, *Senecio*, *Doronicum*, *Dianthus strictus*, &c. This firm also showed *Columbines* in variety, *Delphiniums*, *Pyrethrums*, and *Linaria Eria Kelway*. (Bronze Banksian Medal.)

Messrs. PEED & SON, West Norwood, showed Alpines, Cacti, and *Gloxinias*. Among the Alpines we noted *Ramondia Nathalia*, the pretty blue-flowered *Iris filifolia*, *Aubrietia "Lavender"*, *Rehmannia angulata*, and a small collection of *Melocacti* and *Mammillarias*. (Bronze Flora Medal.)

The GUILDFORD HARDY PLANT Co. exhibited single and double-flowered *Pyrethrums*, *Lupinus*, *Thalictrums*, *Verbascum Wiedmannianum* (a plant with deep purple, yet bright-looking flowers), *Hieraceum villosum*, hardy *Cypripediums*, *Iris germanica His Majesty*, and other varieties.

Messrs. R. HARKNESS & Co., Hitchin, Herts., showed, among other hardy plants, *Lupinus Moorheimii*, a pinkish variety, and *L. Roseleigh Gem*, a flower of a lilac tint; also *L. nootkatensis*, and others of the *L. polyphyllus* section.

Mr. AMOS PERRY, Hardy Plant Farm, Enfield, made a capital show with varieties of *Pyrethrums*, *Lupins*, *Papavers*, *Iris* of various species, *Hemerocallis*, these all bulking largely. *Papaver Queen Alexandra* and *Iris Perryana* were exceedingly pretty varieties. His other *Irises* were very choice and of pleasing colours, as were the *Eremurus himalaicus*, and *Mimulus luteus* hybrids. The hardy *Cypripediums macranthum*, *calceolus spectabilis* and *montanum* were capitally flowered examples. The *Papaver* varieties *Princess Ena*, orange red; *P. Hesperia* and *P. Crimped Beauty* were pleasing in colour and form. (Silver-gilt Banksian Medal.)



FIG. 176.—*MERTENSIA ECHINOIDES LANCEOLATA*: FLOWERS GENTIAN-BLUE.

(Obtained Award of Merit from R.H.S. Floral Committee on Tuesday last.)

Messrs. R. WALLACE & Co., Colchester, showed varieties of *Iris*. The varieties *Iris Caterina*, *I. Laugier*, *I. Darius*, *I. Shelford*, a fine yellow flower; *I. Albert Victor*, *I. Victorina*, and the *Iris sibirica* shown were very pleasing in their forms and colouring. The varieties of *Lupinus polyphyllus* were also noteworthy. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, showed choice varieties of hardy and Alpine plants, together with flowering shrubs. We observed *Rhododendrons Keysii*, *Pink Pearl*, beautifully flowered, and *Doncaster*; a hardy *Cypripedium* or two, *Ourisia coccinea*, *Azalea amena Hexe*, and flowering shoots of *Embothrium coccineum*. (Silver Banksian Medal.)

The Misses HOPKINS, The Mere Gardens, Shepperton, exhibited a small rockery planted with Alpines and made gay-looking with *Azalea rose-flora*, Oriental Poppies, *Lupins*, *Iris* and other flowering plants. (Bronze Banksian Medal.)

Messrs. G. & A. CLARK, Dover, made a showy exhibit with *Pyrethrums* in single and double-flowered varieties; *Ranunculus*, the variety *Evening Star*, a well-formed yellow bloom, obtaining

an Award of Merit. We noted the rather rare blue-flowered *Salvia Tenorii*, *Inula glandulosa*, *Trollius caucasicus*, a number of *Shirley Poppies* in variety, and *Anchusa italica Pride of Devon*. (Bronze Banksian Medal.)

Messrs. BAKERS, Wolverhampton, showed *Papaver orientalis* in variety, the showiest being the well-known *Prince of Orange*; the salmon-scarlet *Queen Alexandra* is also very pretty. Adjoining the Poppies was a large exhibit of *Lupins*.

Mr. CHAS. TURNER, Royal Nurseries, Slough, showed varieties of *Papaver orientalis*, *Pyrethrums* and the fine white single *Pæony Snow Queen*. (Bronze Flora Medal.)

Messrs. GEO. JACKMAN & SON, Woking, staged a table group of hardy flowers such as *Pyrethrums*, *Irises*, *Aquilegias*, *Inula Hookeri*, *Dic-tamnus Fraxinella*, *Campanula glomerata*, *Incarvillea Delavayi*, Oriental Poppies and *Lupins*. (Bronze Banksian Medal.)

Mr. CLARENCE ELLIOTT, Six Miles Nursery, Stevenage, showed a rock-garden exhibit planted with *Oxalis enneaphylla*, *Cypripedium calceolus*, *Geranium argenteum*, *Dianthus neglectus*, *Asperula Gassonii*, a very dwarf rose-flowered species, and others in flower.

Messrs. REAMSBOTTOM & Co., Alderborough Nursery, Geashill, King's Co., showed *Anemone coronaria* in variety, all double-flowered. *King of Salmons* is comparatively new, and *Lord Battersea*, white, with greenish-yellow centre, is new this year. *Evardine* is pretty, the mauve-lilac centre being set in a creamy perianth.

Messrs. BARR & SONS, King Street, Covent Garden, London, showed a large assortment of *Irises*, *Lupins* and *Pyrethrums*. The *Lupins* were coloured varieties in rose, blush, pink and blue shades.

Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester, showed seasonable hardy flowers, including *Irises*.

A group of *Pæonies* was shown by Geo. CHURCHER, Esq., Woodcote, Alverstoke (gr. Mr. G. Mew).

MISCELLANEOUS.

Vases of Sweet Peas were shown by Miss HEMUS, Holdfast Hall, Upton-on-Severn. There were about 40 vases in all, and of the varieties 20 were new to the show board. The finest novelties were *Guy Hemus*, a fine, clear lavender; *Elizabeth Hemus*, pink and buff

colour; Linda Hemus, blue; Marjorie Hemus, white, flushed with purple; Cerise Paradise; Paradise Pearl, white; Coccinea Paradise, and Orange Paradise. The flowers were gathered from plants in the open, raised from autumn sown seeds. (Silver-gilt Banksian Medal.)

Messrs. S. BIDE & SONS, LTD., Alma Nursery, Farnham, Surrey, showed vases of Sweet Peas.

Messrs. CARTER, PAGE & Co., 52 and 53, London Wall, London, staged Cactus and Pæony-flowered Dahlias, a selection of Zonal Pelargoniums, and several annuals. Anagallis in various shades were very pretty, also Salpiglos-

Henry Agnew, Frederick Waterer, Gomer Waterer, Delicatissimum, Lady Clementina Walsh, and Countess of Tankerville. (Silver Flora Medal.)

AWARDS OF MERIT.

Awards of Merit were made to the following subjects:—

Carnation Edith Waters.—The flowers of this perpetual-flowering or tree variety are 3 inches or more in diameter, whilst the colour is that of Mrs. T. W. Lawson. The habit of the plant appears excellent. (Shown by Mr. C. F. WATERS, Balcombe.)

Clivia King George V.—A yellow-flowered variety of Clivia was shown by Mr. MILLER, Wisbech, which some thought to be identical with the variety citrina that gained an Award of Merit from the Floral Committee in 1907.

Heliotrope "Favourite."—The flowers are very large, pale in colour, and the habit of plant and foliage excellent. (Shown by THE KING'S ACRE NURSERY COMPANY, Hereford.)

Iris Italia.—A large-flowered hybrid, raised by the late Sir Michael Foster. It has the appearance of a hybrid of germanica and pallida, but the parentage was not given. The falls are lilac-purple, and the standards bluish-purple set off by a bright yellow beard.

Iris Isoline.—A large, bold flower, apparently of the pallida type, raised by Sir Michael Foster. The falls are coloured old rose and suffused with orange at the sides and top. The standards are bluish margined with bronze. The beard is bright orange. (Both these Irises were shown by Messrs. R. WALLACE & Co.)

Mertensia echioides var. *elongata* (see fig. 176).—This variety produces Gentian-blue flowers on stems 9 to 12 inches in height in May and June. In habit it resembles *M. echioides* and *M. primuloides*, and it increases rapidly by underground stems, quickly forming a dense tuft. It thrives in a moist, sandy-loam with the addition of decomposed leaf-mould. Shade should be afforded from mid-day sun, and the plants must not be disturbed during the resting season, although lifting and division may be carried out in the growing season without harm. (Shown by Messrs. BAKER S.)

Pelargonium "White Queen."—This new variety has perfectly white, single flowers. The habit of the plant is good, and the leaf petioles and flower stems are whitish. (Shown by Messrs. JAMES VEITCH & SONS.)

Pyrethrum "Snow Queen."—This variety has very large, pure-white, single flowers, and the lemon-coloured disc forms an excellent contrast. (Shown by Messrs. KELWAY & SON.)

Robinia Kelseyi (see fig. 177).—This new species was shown by Messrs. VEITCH & SON, Exeter, who had a small plant in a pot under the name of *Acacia Kelseyi*. *Robinia Kelseyi* was introduced into commerce in 1901 by the discoverer, Mr. Harlan P. Kelsey. It is a North American shrub of compact habit, similar to *R. viscosa* var. *macrophylla*, the flowers being of the same colour, but smaller. The species is in cultivation at Kew, and Mr. Bean regards it as having affinity with *R. hispida*, but differing in habit. It flowers in June or July on the shoots of the previous year. The flowers are rose-coloured, and they are produced on short racemes; the fruits are also ornamental.

Sweet Pea Marjorie Hemus.—This is a fine, waved flower of various shades of heliotrope or pale purple.

Sweet Pea Paradise Cerise.—A first-rate salmon-pink or perhaps cerise-coloured flower with excellent standard. (These two varieties of Sweet Peas were shown by Miss HEMUS.)

Sweet Pea Prince of Orange.—A magnificent flower of a shade of cerise. (Shown by Mr. STEVENSON, Woburn Place Gardens, Addlestone.)

Ranunculus Evening Star.—A variety with deep-yellow flowers, as regular as a Pompon Dahlia. (Shown by Messrs. G. & A. CLARK, LTD., Dover.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Harry J. Veitch, H. Little, W. Boxall, W. Thompson, de B. Crawshay, C. Cookson, R. Brooman White, Gurney Wilson, C. H. Curtis, W. P. Bound, H. G. Alexander, F. Sander, F. J. Hanbury, F. M. Ogilvie, A. A. McBean, A. Dye, W. H. Hatcher, J. Cypher and J. Charlesworth.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver-gilt Flora Medal for a very bright and affective group, in which the prevailing feature was made by a large number of their showy *Lælio-Cattleya Fascinator*, the plants varying in tint from those with white sepals and petals and crimson lip to the rose-tinted forms with light purple labellums. The most distinct were L.-C. *Fascinator* Princess Ena with a bright purple lip; L.-C. F. King Arthur, whose lip was a glowing shade of ruby purple; and L.-C. F. Constance, a uniformly, pale-rose form. A grand specimen of a white-flowered *Lælia purpurata*, fine white *Cattleya Mossia*



FIG. 177.—ROBINIA KELSEYI: COLOUR OF FLOWERS ROSE.
Obtained an Award of Merit from R.H.S. Floral Committee on Tuesday last.)

sis, Antirrhinums, Viscaria oculata, and Phlox Drummondii.

Messrs. J. CHEAL & SONS, Crawley, displayed flowering and ornamental-leaved shrubs, and a batch of their rose-coloured Lupin. The front of the display was comprised of trusses of Rhododendrons.

An imposing exhibit of Rhododendrons was shown by Messrs. J. WATERER & SONS, LTD., Bagshot, Surrey, who are specialists in these flowering shrubs. The collection represented the pick of the varieties, such as Baroness Schröder, Viscount Powerscourt, James Mason, Doncaster, B. W. Elliott, Pink Peal, Fastuosum fl. pl., John

Carnation Mrs. E. Martin Smith.—One of the best white, border varieties ever exhibited. The flowers are very large, of good form, and slightly fragrant. The stems appear a little weak, owing to the weight of the bloom. (Shown by Mr. CHARLES BLICK.)

Carnation Queen Mary.—Two excellent qualities belonging to this novelty are rich colour and strong perfume. The colour is a deep maroon-crimson, and the perfume is nearly equal to the Old Clove. A very desirable border variety, and, one which is said to possess a perpetual-flowering character. (Shown by Messrs. W. CUTBUSH & SON.)

Wagneri, and other white Cattleyas; some deep red *Odontioda Charlesworthii* and *O. Bradshawii*; the elegant *Oncidium pulchellum*, the new *Miltonia Argus* (*M. Schroderiana* × *C. Noezliana*), and some pretty hybrid *Odontoglossums* were also included.

Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed two grand examples of varieties of *Miltonia vexillaria* (see Awards), and a fine specimen of *Lælio-Cattleya Lustre superba* (L.-C. callistoglossa × *C. Luddemanniana*), with a fine spike of very large, rosy-lilac coloured flowers with deep-claret labellums veined and mottled with a darker tint; and L.-C. *Kranzlinii* (L.-C. elegans × *C. Mossiæ*), a good hybrid, and very finely-grown.

FERGUS MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), staged a very pretty group of *Cypripediums*, chiefly *C. callosum Sanderæ*, of which there were some 60 flowers. Prominent among them were several plants of the fine *Cypripedium Lawrenceanum* Hyeenum Bank House variety, with 12 flowers of a bright emerald green and white colour, and of fine substance.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), staged an interesting group, including a fine plant of the bright-red *Cryptochilus sanguineum* with three spikes; *Dendrobium Alpha* (× *euosmum* var. *Eleanor* × *regium*), the first cross with *D. regium* and with the same general aspect, but the flowers are tinged with lilac; *Masdevallia radiosa*, a very pretty hybrid *Odontoglossum*, and a singular *Pleurothallis* with erect spikes of white flowers.

Miss MAUD WALTERS ANSON, The Studio, 3, Broadway, Streatham, was awarded the Society's Gold Medal for a fine exhibit of numerous beautifully-executed and faithful-coloured drawings of Orchids, all of natural size and showing details of colour and form in a marvellous degree. The collection occupied the whole of the staging at the end of the hall.

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr. Mr. Howard), was awarded a Silver Flora Medal for a splendid group of *Lælia purpurata*, every shade from nearly white to lilac with deep-purple labellum was represented, the whole of the plants being excellently well grown and profusely flowered. With them were several good *Lælio-Cattleyas*, including a very fine and dark-coloured L.-C. *Schilleriana* and three of the yellow L.-C. *G. S. Ball*.

Mr. W. H. SMITH, The Gardens, West Dean Park, Chichester, was awarded a Silver Flora Medal for an effective group of *Vanda teres*, the flowers on the plants being unusually large, well developed and of a dark-rose tint.

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed a very finely-blotched *Odontoglossum crispum* raised between *O. c. Mundyanum* and *O. c. Chapmanii*. The flowers were finely formed, white, and closely blotched with dark reddish-purple.

H. S. LEON, Esq., Bletchley Park, Bucks. (gr. Mr. G. Cooper), sent a well-flowered plant of *Cattleya Mossiæ superba*, pure white with orange-coloured disc to the lip.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent *Cattleya* "Queen of Sheba" (*Hardyana* × *Schilleriana*), a pretty rose-purple flower with purple marbling and veining on the lip; and *Cattleya Mossiæ* *Grahame-White*, a very large flower with pink-tinted sepals and petals, and fine labellum, with a deep-rose front having a blush-white margin.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an extensive and interesting group. The prevailing features in the group were contributed by a very fine selection of *Lælio-Cattleya Canhamiana* and L.-C. *Fascinator* of great beauty and varied colouring. With them were several fine *Brasso-Cattleya Digbyano-Mossiæ*, the large-flowered *Maxillaria Sanderiana*, a selection of good *Odontoglossums*, two *Aërides Houletianum*, *Phalenopsis amabilis Rimestadiana*, various *Dendrobiums*, including the pretty *D. chrysocrepis* with flattened pseudo-tulbs and yellow flowers with a ventricose lip. Among the *Epidendrums* were *E. raniferum*, now rather rare, and several pretty garden hybrids.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, secured a Silver Flora Medal for a good and varied group, in which the varieties of *Cattleya Mossiæ*, including several white forms,

and *C. Mendelii* were well represented. At one end was a fine specimen of a supposed new *Cœlogyne*, allied to *C. Massangeana*, but different in habit, and with larger and more closely-arranged flowers. Others noted were *Bulbophyllum Lobbii*, with 12 flowers, good *Lælia purpurata*, and *L. tenebrosa*, a selection of *Cypripediums*, very fine *Odontoglossum Pescatorei*, various *Oncidium*s, and *Epidendrums*.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for an effective group of well-grown Orchids, among which the most remarkable were a very large and distinct *Odontoglossum harvengtense*, of peculiar colour; the very finely-shaped white *Odontoglossum crispum* *Magnum Bonum II.*, which has a few dark spots on its broad petals; the large-flowered *Miltonia vexillaria rosea*; and a hybrid *Miltonia* of the *M. Hyeana* section, of good size and colour.

Mr. A. W. JENSEN, Lindfield, Sussex, was awarded a Silver Banksian Medal for a group of his fine *Cattleya Warscewiczii*, chiefly of the dark, purple-lipped type, but with two of the lighter and larger-flowered *C. Warscewiczii gigantea*.

Messrs. STANLEY & Co., Southgate, staged a selection of *Cattleya Mossiæ*, including several white forms.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a small group, in which were two fine white forms of *Odontoglossum crispum* and one pretty spotted form; *O. luteo-purpureum* *Vuykstekei*, *Odontioda Goodsoniæ*, *Cypripedium Maudslayi magnificum*, and good *C. callosum Sanderæ*.

M. MERTENS, Ghent, showed a selection of hybrid *Odontoglossums*.

Mr. H. A. TRACY, Twickenham, sent *Cattleya Mossiæ colorata*, a pretty, light form; *C. Mossiæ Fairlawn*, white, slightly tinged with lavender, and with distinct slate-blue marking on the lip; and *C. Mossiæ delicata*, also a pretty, light-coloured variety.

Messrs. JAS. VEITCH & SONS, Chelsea, showed their very interesting and pretty *Anguloa dubia superba* (*Clowesii* × *uniflora superba*), with well-formed, yellowish flowers, tinged and spotted inside with rose colour.

Mr. HARRY DIXON, Spencer Park Nursery, Wandsworth Common, sent *Cattleya Mendelii* *Dixonæ*, a very pretty and attractive blush-pink variety.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed two remarkable *Odontoglossum harvengtense*, showing what variation may be obtained from seeds, the lighter form being like a large, sparsely-spotted *O. crispum*, with the ground colour canary yellow at first, changing to cream-white; also two other hybrids. (See Awards.)

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontioda St. Fuscini var. *Imperator* (*Cochlidia Norziana* × *Odontoglossum Adriana*), from M. HENRI GRAIRE, Amiens. A very fine hybrid, with a strong spike of 15 flowers, each as large as an ordinary *Odontoglossum crispum*, and of a peculiar red tint, with some slight white markings on the sepals and petals.

AWARDS OF MERIT.

Miltonia vexillaria var. *Snowflake*, from Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A superb variety, with large, snow-white flowers, with a small, pale-yellow mask at the base of the lip.

Odontioda Gattoniensis Rosefieldensis (*Odontoglossum Kegeljanii* × *Cochlidia Noezliana*), from DE B. CRAWSHAY, Esq. (gr. Mr. Stables). A very fine form of this interesting hybrid, the original of which was raised in the gardens of Sir Jeremiah Colman, Bart., and described in the *Gardeners' Chronicle*, January 9, 1909, p. 17. Mr. CRAWSHAY's variety well displays the wax-like texture of *O. Kegeljanii* (*polyxanthum*), the lemon-yellow tint of which appears through the scarlet surface-colour of the flower. The lip is cream-white in front and tinged with red.

CULTURAL COMMENDATION.

To Mr. H. G. Alexander, Orchid grower to Lieut.-Col. Sir GEORGE HOLFORD, K.C.V.O., for

two superb forms of *Miltonia vexillaria* densely set with fine flowers, viz., *M. vexillaria Snowflake* and *M. vexillaria virginale*, with pink-tinted sepals and petals, and broad, white labellum.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair), and Messrs. J. Cheal, C. G. A. Nix, F. Perkins, W. Bates, J. Willard, C. Foster, E. Beckett, J. Jaques, H. Parr, A. Dean, G. Woodward, O. Thomas, G. Wythes, W. Poupert, H. S. Rivers, J. Lyne, P. C. M. Veitch, and J. Davis.

Mr. S. MORTIMER, Swiss Nursery, Farnham, staged a dozen fruits of a fine new *Cucumer* named *Aviator*, obtained from crossing *Market Rival* with *Improved Telegraph*. The fruits were long, smooth, and very green. Mr. MORTIMER was desired to send seeds to Wisley, where it is hoped a full trial of *Cucumbers* will be conducted next year.

Mr. W. PALMER, Andover, showed a box containing several dozen *Peaches*. The exhibitor claims that it is the product of seed, or a sport, and that it is "several weeks" earlier than any other variety. No account of the treatment afforded the tree which produced the fruit was given. The variety was named *King Edward*. Mr. PALMER was invited to send a young tree to Wisley Gardens for trial there against other well-known early *Peaches*.

Messrs. STUART LOW & Co., Bush Hill Nursery, Enfield, showed growths carrying ripe fruits of their *Lowberry*, also some gathered fruits under a bell glass. It is claimed that this fruit is much superior to the *Loganberry*. The fruits shown had been ripened under glass, and were soft, juicy, and very pleasant to the taste. It is promised that fruits from the open will be shown later. Fruits of the red *Phenomenal*, also a long berry, were shown by Messrs. Low.

Messrs. JAS. VEITCH & SONS, Chelsea, staged on a table some 30 feet long a remarkably high-class collection of vegetables, set up with considerable skill, the whole displaying high merit. It comprised some 60 dishes, baskets, or mounds. Pyramids of *Cauliflowers* were prominent of the varieties *Snowball* and *Early Forcing*; there were *Cabbage Earliest of All*, *Ellam's Early Dwarf*, and *Veitch's Incomparable*, *Cabbage Lettuce Golden Queen*, *Stanstead Park*, *Early Favourite*, *All the Year Round*, and *Marvel*; *Superb White Cos*; *Potatoes Express*, *May Queen*, *Midlothian Early*, and *Duke of York*; *Peas Selected Gradus*; *Beans Improved Long Pod*, *Wythes's Early Gem*, and *Centenary*; *Butter French Beans*; *Cucumbers Sensation and Perfection*; *Tomatoes Perfection*, *Sunny Bank*, *Ham Green* and *Golden Jubilee*; various *Marrows*; *Matchless Scarlet Carrot*; fine *Mushrooms*; *Paris Market* and *Early White Milan Turnips*; *Rhubarbs*, *Spinaches*, *Radishes*, and other kinds. (Silver-gilt Knightian Medal.)

ROYAL COUNTIES AGRICULTURAL.

JUNE 7, 8, 9, 10.—The Royal Counties Jubilee Show, held at Winchester on these dates, included many features of interest to horticulturists.

Classes were provided for forestry to show the qualities of certain trees, and the use of their timber in estate work, such as gate-making.

Messrs. TOOGOOD & SONS, Southampton, had an interesting display of *Salpiglossis* in pots, very fine specimens of their *Princess Ena Stocks* in large and variously-coloured spikes, *Gladiolus*, *Sparaxis*, *Ixia*, *Marguerites*, *Ferns*, and other flowering subjects. They also showed *Tomatoes*, *Melons*, *Cucumbers* and *French Beans*.

Messrs. TOOGOOD were also responsible for the decoration of the exterior of the Council's tent, which they carried out with *Roses* trained to the pillars. On each side of the entrance were massive banks of *Salpiglossis*, most admirably grown and profusely flowered. Corner groups of *Marguerites*, *Pansies*, *Coleus*, &c., completed an attractive embellishment.

Messrs. SUTTON & SONS, Reading, arranged, in handsome groups on the outside of their building, *Nemesia strumosa*, *Cineraria stellata* edged with an extremely good dark-blue *Lobelia*; single *Petunias*, dwarf forms of double and single *Chrysanthemum coronarium*, *Lilium longiflorum*, and *Rhodanthes*. Inside the structure were bold groups of double *Begonias*,

Gloxinias, Calceolarias, Schizanthuses, and Mignonette. Vegetables were a feature, and Tomatos, Broad Beans, Potatos, Cucumbers, Globe Artichokes, Peas, Kidney Beans, Lettuces, Mushrooms, Asparagus, Cauliflowers and Melons in first-class condition completed a most imposing exhibit.

Messrs. E. WEBB & SONS, Wordsley, arranged bold groups of Calceolarias. *Cineraria stellata*, Clarkias, Gloxinias, and Ranunculuses of their well-known strains. Vegetables from this firm were represented by Early Mammoth Cauliflower, Tomatos, Kidney Beans, Cucumbers, and other kinds.

Mr. C. W. BREADMORE, Winchester, staged three dozen bunches of Sweet Peas in grand condition. Especially noticeable were Mrs. Townsend (pale blue), A. N. Dickson, Dusky Monarch, Mrs. C. W. Breadmore, Constance Oliver, Princess Juliana, Elsie Herbert, Winsome, Freda, improved Etta Dyke, and Lavender George Herbert.

Messrs. E. HILLIER & SONS, Winchester, decorated the entrance to the president's (Earl of Northbrook) private tent, arranging an old-English garden containing flag paths, a sundial, and

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

In our report of the Paris spring show last week we made but little reference to the Roses and to the Rose conference. The details of this latter gathering will be published in the *Journal* of the National Horticultural Society of France. The whole proceedings appear to have given the greatest satisfaction to those concerned either as visitors or as organisers.

In the Show itself Roses were exhibited in large numbers, but, as stated by Mr. Geo. Paul, the flowers were not of the high excellence to be seen in English collections. Novelties would appear to have been scarce, for in the *procès-verbal* of the Floral Committee there does not appear to have been a new Rose certificated.

There were 13 classes devoted to Roses, the most important being for 100 standards. In these classes 29 exhibitors entered. The famous firm of MM. LEVÊQUE ET FILS made a large display, for they had two long borders filled with standards on each side of the show, besides several beds of various shapes in the middle filled

Brown, Dean Hole, Mildred Grant, Mme. de Watteville, Mme. Jules Grolez, Mme. Ravary, Frau Karl Druschki, Mme. Hoste, Capt. Christy, Caroline Testout, Mme. Viger, Gladys Harkness, Ma Tulipe; Camoens, Mme. Abel Chateaux, John Hopper, General Jacqueminot, Horace Vernet, Dupuy Jamain, Merveille de Lyon, Marie Van Houtte, Mrs. E. S. Hill, Lady Wenlock, La France, Etoile de Lyon, Viscountess Folkestone, Grace Darling, Liberty, Jules Margottin, Paul Neyron, Jean Ducher, Her Majesty, Magna Charta, Ulrich Brunner, Richmond, and Gabriel Luizet.

From an artistic point of view the exhibit from M. AUG. NONIN must be accorded the palm (see fig. 178). It was most tastefully arranged in two divisions with a central path, the entrance at each end being decorated with a rambler-covered arch. Quite a variety of pillar and Rambler Roses were staged, mingled with standards and large bush plants in pots. The advantage of the display was that, besides having two ends, there were also four sides to the exhibit, two inside and two outside. We noted Phyllis, Lady Gay, Tausendschon, Dorothy Perkins, Mrs. Flight, Hiawatha, White Dorothy Perkins, &c.



FIG. 178.—RAMBLER ROSES EXHIBITED AT THE PARIS SHOW BY MONS. AUG. NONIN.

Alpine plants growing between the stones of the paths. In front of the tent climbing Roses were arranged on rustic tree branches, encircling a Yew hedge, with beds of Violas. Adjoining this was an extensive collection of Conifers, flowering and foliage shrubs and trees, with a water-garden. They had also *Anchusa italica* Dropmore variety, and "Opal"; *Olearia stellata*, *Eremuri*, *Azaleas*, *Acers*, *Irises*, *Water Lilies*, with a representative collection of new Chinese plants, mainly introduced by Mr. E. H. Wilson, such as *Davidia involucrata*, *Ilex Peryi*, *Viburnum Harryi*, *Cotoneaster Henryi*, *Berberis Wilsonæ*, *Viburnum rhytidophyllum*, *Rubus lasiostylus*, the climbing *Aconitum Hemsleyanum*, and species of *Vitis*.

Messrs. B. LADHAMS & Co., Shirley, Southampton, arranged, under the shade of a large Chestnut tree, a rockery with Lily-pond, effectively planted with *Aster alpinus*, *Aubrietias*, *Hemerocallis phlomis*, *Saxifragas*, *Edelweiss*, *Irises* in variety, *Incarvillea grandiflora*, *Heuchera*, *Trollius*, and *Aquilegia Stuartii*, with cut spikes of *Pyrethrums*, *Poppies*, climbing *Roses*, and many other flowers

with dwarf, bush plants. The varieties were too numerous to mention, and comprised all sections. At each end of two of these middle displays were quite a collection of Polyantha Roses, including Mrs. Cutbush, Mme. Norbert Levavasseur, Phyllis, and Orleans Rose (new).

M. T. NIKLAUS showed a long border of Roses, having standards in variety at the back, set off with some small, bush plants in front.

M. HONORÉ DEFRESNE arranged his exhibit right and left of the show hall. At intervals he had some huge standards, or parasols, as they are termed, composed of small-flowering varieties with the heads trained to a wire support.

Next to his exhibits was the display sent by M. GEO. BOUCHER. This exhibit included Mrs. Cutbush in quantity, Mme. Norbert Levavasseur, a large collection of standards, and a front edging formed of a single row in pots of various Polyantha varieties.

In these collections we noticed the following varieties among those shown most frequently:—Prince de Bulgarie, Killarney, Beauté Inconstante, Lyon Rose, L'Innocence, Etoile de France, Kaiserin Augusta Victoria, Bessie

At one end, M. NONIN had some large plants of Anthemis "Perfection" (white), A. "Perfection" (rose), and A. Etoile Blanche, most attractive in appearance, while at the other end right and left were some good plants of Hydrangeas La Lorraine, Avalanche, Mlle. Renée Gaillard, La Fraicheur, and Souvenir de Mme. Chautard.

A great feature of the Rose show was M. GRAVEREAUX's Retrospective Rose Exhibition. In a rectangular portion of the great hall, fenced off specially for the purpose, was a garden with neat divisions containing living specimens showing the Rose from its earliest ancestors down to the present time. To the right, at the farther end of the hall, were the literary, historic and artistic exhibits, most of them being enclosed in glass cases. On the walls all round were many prints, engravings, oil and water-colour drawings and pictures of many subjects relating to the Roses. To satisfy the curiosity of the visitor and to give him the fullest information of the contents of this Rose museum, M. GRAVEREAUX had compiled a neat little octavo guide, which must certainly be of great service to all those who have an interest in the evolution of the flower.

In the glass cases we noted many old books on the Rose, a plan of the Empress Josephine's Rose garden at La Malmaison, textile fabrics, laces, wallpaper designs, porcelain, knick-knacks of many kinds, in all of which the rose formed an important part of the design. There were many botanical plates of Roses, coloured drawings of the flower by the great Redouté, the Rose as depicted in postage stamps, in book plates, in numismatics, old Rose-growers' catalogues, and books referring to the Rose in history, in poetry, in fables, in popular songs; there were even remains of Roses which are stated to have been taken from the coffin of an Egyptian mummy buried at Necropolis in the 2nd or 3rd century. Finally, and without by any means exhausting the catalogue of this interesting collection, were some specimens of pre-historic Rose leaves imprinted or petrified in pieces of stone.

The historic Rose-garden was not less interesting. It was divided into four sections, there being living examples of Rose types from the earliest records to the present time.

ROYAL NATIONAL TULIP.

(NORTHERN SECTION.)

JUNE 4.—This show was held at Middleton, near Manchester, on this date, being in many respects a counterpart of the Southern one held at Harpenden, and reported on p. 371. It appeared an out-of-the-way centre for a "National" society to hold its annual gathering. If, however, the history of the Florist Tulip is traced, it will be found that when the South of England lost its prominence in the 'forties of last century, the work was taken up with renewed zeal in the North and Midlands, and we find such names as Slater, of Manchester, Gibbons, of Chellaston, Headly, of Cambridge, and Willison, of Whitby, taking the lead. Their successes stimulated cultivators to still further efforts, and then, later, there were Storer, of Derby, Hardy, of Warrington, Hepworth, Parker and Hardwick, of Wakefield, Battersby, of Mansfield, Ashmole and Jackson, of Middleton, and Dymock, of Stockport. It is the flowers of these raisers, "together with the survival of the fittest of older times, which practically constitute our collections of the present day." The seedling raisers of to-day can almost be counted on the fingers of one hand—when we have mentioned Messrs. J. W. Bentley, C. W. Needham and A. D. Hall we have left very few names out—and, for some reason which they cannot account for, their seedlings are almost all of them below the old standards. It may be hoped that better success will attend Mr. Needham's "Dr. Cooper," a wonderfully beautiful orange breeder which was included in the raiser's stand of six dissimilar Breeder Tulips which won the 1st prize. To the ordinary lover of Tulips, this variety and a pale-lavender variety known as Bridesmaid or Alice Gray, seemed the most lovely flowers in the whole show. There was a purity and refinement of colour about them which are seldom met with among the Cottage and Darwin sections. It is plain that latterly the Tulip centre of England has been in the north, and, as unfortunately, the number of cultivators became less, it was found about 12 or 14 years ago that with the exception of Wakefield, there were probably more Tulip growers within a radius of 20 miles round Middleton than anywhere else. Hence for the last few years the northern show has always been held here.

One of the "veterans," Mr. J. Knowles, of Stalybridge, informed us that he had been showing Tulips since 1860, and well remembered the time when, in Stalybridge alone, there were four annual shows. Now the annual show of the National Society only brings together a mere handful of exhibitors, and although they are all enthusiasts, they must feel a certain sadness when they remember the great times of the past.

The schedule is divided into "Rectified Tulips" and "Breeder Tulips." For the information of those who do not understand the difference, it may be well to say that every Tulip plant begins its life with self-coloured flowers, which are called "Breeders," and which, to come up to the florist standard, must have a perfectly pure white or pure yellow base. In the course of time the flowers become striped or "rectified," the white base ones with some shade of purple or rose and the yellow base ones with some shade of brown or brownish-red. This

marking may take one of two forms; either it may be confined altogether to the edges of the petals, when it is called a "feather," or else there is a wider or narrower bar of colour down the middle of each petal as well as that around the outside, in which case the flower is said to be flamed.

In the rectified section the most important class was one for 12 dissimilar Tulips, two feathered and two flamed in each class. Mr. J. W. BENTLEY, of Stakehill, Castleton, was placed 1st. He had Sir Joseph Paxton and Samuel Barlow, both flamed bizzars, in capital condition. This last flower gained the prize offered for the premier flamed Tulip in the show. He also had a good bybloemen in Adonis. Mr. J. KNOWLES, of Stalybridge, was awarded the 2nd prize. A remarkable flower in his collection was Robert Guest. It is a beautiful yellow Tulip with chestnut-red feathering, an old variety, but very scarce, as it seldom makes any offsets. There are now only two bulbs in existence, and both of them are in Mr. KNOWLES's collection. Julia Farneese was another striking bloom on account of its peculiar marking. In technical tulipology it is called a "plated" flower, that is the feathering around the petals is much wider than usual, and looks more like a solid mass of colour than the edges of a feather or the teeth of a comb.

Mr. C. W. NEEDHAM, of Hale, was a good third. His exhibit showed, in a marked degree, the three great characteristics of regularity of size, uniformity of marking and diversity of type, which should be only less important in a judge's eye than the purity of base, the correctness of form and the evenness of marking in the individual flowers. It seemed to us a moot point whether the 1st and 3rd prizes should not have been reversed. Sir Joseph Paxton was probably his best flower. The 4th prize was awarded to Mr. G. EYRE, of Ripley, Derbyshire.

In a class for smaller growers, Mr. J. WRIGHT, of Wakefield, was placed 1st. He had a very fine flamed Tulip in Sir J. Paxton and a feathered bybloemen in Stockport, or, to give it its longer and original name, "Trip to Stockport." Mr. W. STRINGER, of Rhodes, won the 2nd prize, and Mr. J. FILLINGHAM, of Blackley, the 3rd prize.

In the Breeder section the chief class for six dissimilar Tulips was well filled, Messrs. NEEDHAM, EYRE, and BENTLEY being followed by Mr. I. WHITWORTH, Wakefield; J. WOOD, Middleton; and J. KNOWLES, Stalybridge, in the order named. Two of the most beautiful of these flowers have been referred to above.

In the single bloom classes there was a keen competition, both among the rectified varieties and the breeders. Stockport took two of the first three prizes in the feathered bybloemen class, and Alfred Lloyd, as a bizarre breeder, carried off all three prizes, Modesty being equally successful in the class for feathered roses.

At the southern show there were classes for Darwin and Cottage Tulips, but here these were conspicuous by their absence. The old ways and customs still remain unaltered, for up to the present "modernism" has knocked at the door in vain, but we learn that important, and what can only be called revolutionary changes, are in contemplation with regard to both the shows.

A National Tulip Society should embrace every section of the genus, including, as well as florist flowers, the species and Cottage and Darwin kinds. Surely there is room for all, and all would be the better for the Society's recognition.

We sincerely hope these rumours have some foundation, and that the old society, like the fabled Phoenix, is about to renew its youth and regain the important position in the floral world it occupied in the past.

LINNEAN SOCIETY.

JUNE 2.—The President stated that he had appointed Sir Frank Crisp, Mr. H. W. Monckton, Prof. F. W. Oliver, and Prof. E. B. Poulton, to be vice-presidents for the ensuing session.

Mr. H. W. Monckton, treasurer and V.-P., then referred to previous exhibitions of Witches' brooms or Witch-knots in Conifers, instancing those by Dr. Masters on March 18, 1886. Mr. James Saunders, A.L.S., on April 21, 1907, and the Rev. T. R. R. Stebbing on April 21 of the present year. He showed by lantern slides similar growths on *Pinus sylvestris* growing near Wellington College, in Berkshire.

Dr. Stapf, on behalf of Mr. J. F. Waby, F.L.S., of the Botanic Garden, Georgetown, British Guiana, exhibited lantern slides from photographs of male and female specimens of *Lodoicea Sechellarum*, Labill., which were flowering and fruiting in that garden. He stated that of 36 nuts specially imported in 1893, only three plants survived, the two in question, and a third which had not yet flowered. It is of interest as being the first occasion of this palm flowering in the New World, and for its precocious development.

Sir Frank Crisp showed fresh specimens in flower of *Linnaea borealis* from his garden at Friar Park, Henley.

The General Secretary placed on the table for inspection a living specimen of the rare and local Orchid, *Ophrys aranifera*, received that morning from Mrs. Mann, of Temple Ewell Vicarage, near Dover; it had been procured from the neighbourhood of Folkestone.

THE FLORA OF GAZALAND.

The paper of the evening was entitled "A Contribution to Our Knowledge of the Flora of Gazaland: An Account of Collections Made by Mr. Swynnerton, F.L.S., by Members of the Department of Botany, British Museum, with Notes by Mr. Swynnerton."

The collections which form the subject of this paper were made by Mr. C. F. M. Swynnerton chiefly in the high country which forms the boundary between Eastern Rhodesia and Portuguese territory. It consists of a number of detached masses of highland separated by river-valleys, which ultimately unite to form the Buzi, an important river running eastwards through the lower-lying Portuguese territory to enter the Indian Ocean near Beira. Mr. Swynnerton has supplied an interesting account of the phytogeographical character of the district. There is evidence that the place was once covered with dense forest, which has, however, been largely destroyed by the annual forest fires during some former period of dense population. At present the forest occupies the more protected uplands, forming great patches: such are the great forests in the Chimanimani Mountains in the north, a rugged range reaching a height of 8,000 feet, and the Chirinda and Chipete forest patches closely adjoining each other, in the south. Chirinda is described as a virgin forest of enormous and mostly evergreen trees, covering about 12,000 acres of the higher portions of the hill. Its larger trees range from 80 to 170 feet in height, and the undergrowth, with Mosses, Ferns, epiphytes, and lianas, is of a thoroughly tropical character.

The collection has proved rich in novelties, especially among the gamopetalous orders of Dicotyledons, including a new genus of *Asclepiadaceae*, *Swynnertonia*. There are also a large number of *Rubiaceae* new to science, especially in the genera *Gardenia* and *Pavetta*; several new *Senecios* and *Helichrys*ums, some new heaths, several new species of *Acanthaceae*, and others. Among the *Polypetalae* several new *Meliaceae* are especially noticeable, also an *Anemone* from Mt. Pene, a new *Polygala*, and others. A new *Leucospermum* forms the first record from Tropical Africa for this well-known South African genus. The *Monocotyledons* include several new *Orchids* in well-known African genera, such as *Eulophia* and *Angræcum*, and a number of new *Liliaceae* and other petaloid groups.

As was to be expected from the geographical position, the botany of these highlands shows a strong South African affinity, and several of the genera and a considerable number of the species have not been hitherto recorded beyond South Africa. A large proportion of the plants are identical with those previously known from Nyassaland, including the two Conifers, the *Milanjia* Cedar (*Widdringtonia Whytei*) and *Podocarpus milanjianus*. There is also a well-marked Angolan element. An interesting novelty is *Pseudocalyx africanus*; *Pseudocalyx* is a Malagasy genus not hitherto known from tropical Africa.

The introduction was read by Dr. Rendle, with a review of the new *Monocotyledons*. Mr. E. G. Baker and Mr. S. Moore particularising the plants, which had been investigated by them.

Dr. Stapf, Dr. A. P. Young, Mr. F. V. Coville (visitor), Mr. Clement Reid, and the Rev. T. R. R. Stebbing took part in the discussion, and Dr. Rendle replied to the questions asked.

MARKETS.

COVENT GARDEN, June 8.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Anemones, p. doz. 1 0-1 6	Marguerites, p. doz. 3 0-5 0
Azalea, Ghent, per bunch ... 9 6-0 9	bunches white and yellow ... 3 0-5 0
— Fielder, per dozen bunches ... 2 0-3 0	Mignonette, per dozen bunches ... 3 0-4 0
Bouvardia ... 4 0-6 0	Narcissus poeticus (Pheasant's Eye), per doz. bunches ... 1 0-2 0
Carnations, p. doz. blooms, best American (var.) ... 2 0-3 0	Odontoglossum crispum, per dozen blooms ... 1 0-2 0
Carola, and other special varieties ... 4 0-5 0	Pelargoniums, show, per doz. bunches ... 4 0-6 0
— second size, per doz. bunches ... 1 6-2 0	— Zonal, double scarlet ... 4 0-6 0
Cattleyas, per doz. blooms ... 6 0-9 0	Poppies, Iceland, per doz. bunches ... 8 0-10 0
Dafodils, best, per doz. bunches ... 1 6-3 6	Richardia africana (Cala), p. doz. ... 1 6-2 0
— seconds ... 1 0-2 0	Roses, 12 blooms, Niphetos ... 1 0-2 0
— double, per doz. bunches ... 1 0-1 6	— Bridesmaid ... 1 6-2 6
Eucharis grandiflora, per dozen blooms ... 4 0-5 0	— C. Testout ... 1 6-2 6
Freestias, per dozen bunches ... 1 0-1 6	— Kaiserin A. Victoria ... 1 0-3 0
Gardenias, per doz. Gladioli, Colvillei varieties, per dozen bunches ... 6 0-9 0	— Capt. Hayward ... 1 6-2 6
Gypsophila elegans, p. doz. bunches ... 2 0-3 0	— C. Albert ... 1 6-2 6
Heather (white), per bunch ... 1 0 —	— Mme Chateau ... 1 0-2 6
Iris (Spanish), per doz. bunches ... 5 0-8 0	— Richmond ... 2 0-4 0
Lilac, per bunch ... 1 0-2 0	— The Bride ... 1 0-2 0
Lilium auratum, per bunch ... 2 0-3 0	Spiraea, per doz. bunches ... 4 0-6 0
— candidum ... 2 0 —	Stephanotis, 72 "pips" ... 3 0-4 0
— longiflorum ... 2 0-3 0	Stocks, per doz. bunches ... 3 0-4 0
— laucofolium rubrum ... 1 6-2 0	Sweet Peas, per dozen bunches ... 2 0-5 0
— album ... 1 6-2 0	Tuberose, p. gross ... 4 0-6 0
Lily of the Valley, p. doz. bunches ... 6 0-9 0	— per doz. blooms ... 4 0-6 0
— extra quality ... 10 0-12 0	Tulips, singles, per doz. bunches ... 6 0-9 0
	— doubles, per doz. bunches ... 10 0-15 0
	Violets, per doz. bunches ... 1 6-2 0
	— Parma, per bch. ... 1 6-2 6

Cut Foliage, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Adiantum cuneatum, per dozen bunches ... 4 0-6 0	Ferns (French) ... 0 6-0 9
Asparagus plumosus, long trails, per doz. bunches ... 12 0-18 0	Galax leaves, per doz. bunches ... 1 6-2 0
— medium, doz. bunches ... 12 0-18 0	Hardy foliage (various), per dozen bunches ... 3 0-9 0
— Sprenger ... 9 0-12 0	Ivy-leaves, bronze long trails per bundle ... 1 0-1 6
Berberis, per dozen bunches ... 2 6-3 0	— short green, per doz. bunches ... 1 0-2 0
Croton leaves, per dozen bunches ... 9 0-12 0	Moss, per gross ... 3 0-4 0
Cycas leaves, each ... 1 0-2 0	Myrtle, dz. bchs. (English), small-leaved ... 4 0-6 0
Ferns, per dozen bunches (English) ... 2 0-3 0	— French ... 1 0-1 6
	Smilax, p. dz. trails ... 4 0-6 0

Plants in Pots, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Ampelopsis Veitchii, per dozen ... 6 0-8 0	Crassulas, per doz. ... 8 0-12 0
Aralia Sieboldi, p. dozen ... 5 0-8 0	Crotons, per dozen ... 18 0-30 0
— larger specimens ... 9 0-12 0	Cyclamen, per doz. ... 8 0-12 0
— Moseri ... 6 0-8 0	Cyperus alternifolius, per doz. ... 4 0-5 0
— larger plants ... 12 0-18 0	— laxus, per doz. ... 4 0-5 0
Araucaria excelsa, per dozen ... 12 0-30 0	Dracænas, per doz. ... 9 0-24 0
— large plants, each ... 3 6-5 0	Erica candidissima, per dozen ... 18 0-24 0
Aspidistras, p. dz., green ... 15 0-24 0	— Cavendish, per dozen ... 24 0-36 0
— variegated ... 30 0-42 0	— persoluta alba ... 24 0-30 0
Asparagus plumosus nanus, per dozen ... 9 0-12 0	— small plants (various) ... 3 0-5 0
— Sprenger ... 9 0-12 0	— variegata ... 24 0-36 0
— tenuissimus ... 9 0-12 0	Euonymus, per dz., in pots ... 3 0-8 0
Boronia heterophylla, per dz. ... 24 0-30 0	— from the ground ... 3 0-6 0
— megastigma ... 18 0-24 0	Ferns, per 100, in thumbs ... 8 0-12 0
Calceolarias (herbaceous), per dozen ... 6 0-8 0	— in small and large 60's ... 12 0-20 0
— yellow, per dz. ... 6 0-8 0	— in 48's, per dz. ... 4 0-6 0
Cinerarias, per dozen ... 5 0-8 0	— choicer sorts ... 8 0-12 0
Clematis, per doz. ... 8 0-9 0	— in 32's, per dz. ... 10 0-18 0
— in flower ... 18 0-24 0	Ficus elastica, per dozen ... 9 0-12 0
Cocos Weddelliana, per dozen ... 18 0-30 0	— repens, per doz. ... 6 0-8 0
Coleus, per doz. ... 3 0-5 0	Fuchsias, per dz., standards, each ... 2 0-4 0
	Grevilleas, per dz. ... 4 0-6 0
	Heliotrope, per dz. ... 5 0-6 0
	Hyacinths, per dz., pots, 3 in a pot ... 6 0-9 0

Plants in Pots, &c.: Average Wholesale Prices (Contd.).

s.d. s.d.	s.d. s.d.
Hydrangeas hortensis, per doz. ... 9 0-18 0	Mignonette, p. doz. ... 4 0-6 0
— Thos. Hogg ... 12 0-24 0	Pelargoniums (show), per doz. ... 12 0-18 0
Isolepis, per dozen ... 4 0-6 0	— Ivy leaved, per dozen ... 6 0-8 0
Kentia Belmoreana, per dozen ... 18 0-24 0	— Zonal ... 5 0-6 0
— Fosteriana, per dozen ... 18 0-30 0	Petunias, per doz. ... 6 0-8 0
Latania borbonica, per dozen ... 15 0-21 0	— in 60's ... 2 0-3 0
Lilium longiflorum, per dz. ... 24 0-36 0	Selaginella, p. doz. ... 4 0-6 0
— laucofolium, per dozen ... 18 0-30 0	Spiraea japonica, per dozen ... 8 0-10 0
Lily of the Valley, per dozen ... 12 0-18 0	Stocks (Intermediate), per dz. ... 5 0-8 0
Marguerites, white, per dozen ... 5 0-8 0	Tulips, in pots, special ... 6 0-9 0
	Verbena, per doz. ... 5 0-9 0

Fruit: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Apples (Australian), per case ... 10 0-12 0	Lemons (Naples), 420 ... 22 0-25 0
— Mouro's Favorite ... 10 0-12 0	— (Messina), 150 ... 8 6-10 6
— Tasmanian, per case ... 10 0-12 0	Ivy-leaved, per doz. ... 1 6-1 9
— Ribston ... 10 0-12 6	Melons (English), 1 ... 1 6-2 6
— New York ... 10 0-13 0	— (Guernsey), 1 ... 1 6-3 0
— Scarlet Pearmain ... 9 6-11 6	Nectarines, dozen: ... 12 0-16 0
— Crews Egg ... 9 0-10 0	— selected ... 12 0-16 0
— Wellington ... 13 0 —	— seconds ... 4 0-8 0
— Sturtevant ... 10 0-12 0	Nuts, Almonds, p. bag ... 96 0-42 0
— French Crab ... 10 0-12 0	— Brazils, new, per cwt. ... 45 0 —
Apricots (French), per box ... 1 3-1 6	— dried, per cwt. ... 50 0 —
— per case ... 2 3-4 0	— Barcelona, per bag ... 32 0-34 0
Bananas, bunch: ... 8 0-10 0	— Cocoa nuts, 100 ... 10 0-14 0
— Doubles ... 8 0-10 0	Oranges—
— No. 1 ... 8 0-10 0	— Californian ... 14 6-16 0
— Extra ... 10 0-14 0	— Navel, box 60 ... 14 6-16 0
— Giant ... 14 0-18 0	— " " 112 ... 14 6-16 0
— Red coloured ... 4 6-6 0	— " " 126 ... 14 6-16 0
— Red Doubles ... 8 0-9 0	— Denia, per case ... 18 0-20 0
— Loose, per dz. ... 0 6-1 0	— 420 ... 24 0 —
Cherries (French), per box ... 2 0 —	— (714) selected ... 24 0 —
— 1/2 bushel ... 9 0-10 0	— Murcia (200) ... 12 6-17 0
Custard Apples, p. dozen ... 6 0-12 0	— (300) ... 10 6-16 6
Figs ... 2 0-8 0	Peaches (English), per doz. ... 8 0-18 0
Grape Fruit, case: ... 2 0-8 0	— seconds ... 3 0-6 0
— 96's ... 2 0 —	Pears (Avocado), per doz. ... 6 0-12 0
— 80's ... 2 0 —	— (Tasmanian): ... 6 0-12 0
— 64's ... 2 0 —	— Vicar of Wakefield, large cases ... 13 0-14 0
Grapes, per lb.: ... 1 6-3 6	Pineapples, each ... 2 0-5 0
— Black English, (new) ... 1 6-3 6	Strawberries, p. lb. ... 2 0-3 0
Grapes (Australian), per 20 lbs. ... 18 0 —	— seconds ... 0 9-1 3
— Black ... 20 0 —	— (Southampton's), per basket ... 6 6-8 6
Lenons, per case: ... 14 0-16 0	— (French), per crate of 4 baskets ... 8 0-12 0
— (Messina), selected, 300 ... 14 0-16 0	
— selected, large ... 16 0-20 0	

Vegetables: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Artichokes (Globe), per dozen ... 3 0 —	Lettuce (French), Cos, per dozen ... 2 6-5 0
— Jersey, 1/2 sieve ... 0 9-1 0	Marrows, per doz. ... 4 0-8 0
Asparagus, English, per bdle, 100 sticks ... 2 0-2 6	Mint, doz. bunches ... 3 0-6 0
— Giant ... 7 6-20 0	Mushrooms, per lb. ... 0 8-1 0
— Montauban ... 1 9-2 0	— broilers ... 0 6-0 8
— Toulouse ... 1 6-2 0	Mustard and Cress, per dozen pun. ... 0 6-0 8
Beans (English and Chan. Islands), per lb. ... 0 9-1 0	Onions (spring), dz. bunches ... 1 6 —
— Broad (French), per pad ... 2 6-3 6	— Egyptian, bags ... 7 0 —
Beetroot, per bushel ... 2 6 —	Parsley, 1/2 sieve ... 1 6-2 0
Cabbages (spring), per hamper ... 2 6-3 6	Peas (French), pad ... 4 6-5 0
Carrots (English), dozen bunches ... 4 0-5 0	— (Jersey) per lb. ... 1 3-1 6
— (French), per dozen bunches ... 5 0-6 0	Potatoes (Algerian), cwt. ... 14 0 —
Cauliflowers, hamper (24-30) ... 4 0-6 0	— (Channel Islands), per lb. ... 0 14-0 2
— per doz. (large) ... 3 0-4 0	— (Tenerife), per cwt. ... 6 0-9 0
Cucumbers, p. flat ... 3 6 —	— (Lisbon), case ... 4 0-4 6
— 30's ... 6 6 —	Rhubarb, Natural, per dz. bundles ... 2 0-3 0
— 36's ... 6 6 —	Radishes (English), per dozen ... 0 8-0 10
— 42's ... 5 6 —	Spinach, 1/2 sieve ... 1 6-2 0
Endive, per dozen ... 2 6 —	Stachys tuberosa, per lb. ... 0 4-0 5
Greens, Spring, bag (Herbs), sweet, packets, per gross ... 7 0 —	Tomatoes—
Gooseberries, 1/2 bus. ... 5 0 —	— (English), per dozen lbs. ... 6 0-6 6
Horseradish, foreign, new, per bundle ... 1 0-1 6	— small selected ... 5 0-6 0
— 12 bundles ... 12 0-18 0	— seconds ... 2 6-3 0
Leeks, 12 bundles ... 1 0-1 6	— (Guernsey), per dozen lbs. ... 6 0-6 6
Lettuce (English), per bushel ... 0 9-1 6	— (Tenerife), per bundle ... 8 0-16 0
— hamper ... 1 6-2 6	Turnips, 12 bunches ... 2 0-3 0
— Cos, per dozen ... 2 0-4 0	— (French), per dozen bunches ... 6 0-8 0

REMARKS.—Hot-house Strawberries are meeting a better market, and prices have been firmer for both best and second quality berries. French Strawberries are arriving in a sounder condition, and are meeting a better market generally. French Cherries are a good supply, but the

quality is only fair. English and Guernsey Tomatoes are meeting a moderate demand. English Peaches and Nectarines are a steady market, whilst grapes are selling well. The demand for fruit and vegetables has improved. E. H. Rides, Covent Garden, June 8, 1910.

Potatoes.

per cwt.	per cwt.	per cwt.	per cwt.
Blacklands ... 2 0-2 9	Lincolns—	Jersey, per cwt. ... 8 0-8 6	
Dunbars ... 5 6-5 9	Sharpe's Express ... 2 3-2 6	Lisbon, per case ... 4 0	
Maincrop ... 4 0-4 6	Up-to-Date ... 3 0-3 9	St. Malo, per cwt. ... 8 0	
Up-to-Date ... 4 0-4 6	Dalmeny Beauty ... 3 6-3 9		
Lincolns—	Royal Kidney ... 2 0-2 6		
Evergood ... 2 3-2 6	Maincrop ... 2 9-3 6		
	King Edwards ... 3 0-3 6		

New Potatoes.

per cwt.	per cwt.	per cwt.	per cwt.
Teneriffe, per cwt. ... 7 0-8 6	Jersey, per cwt. ... 8 0-8 6		
Lisbon, per case ... 4 0	Cherbourg, per cwt. ... 7 0-7 6		
	St. Malo, per cwt. ... 8 0		

REMARKS.—Trade in old Potatoes is fair. New Potatoes are much cheaper. E. H. Rides, Covent Garden and St. Pancras, June 9, 1910.

COVENT GARDEN FLOWER MARKET.

Supplies of most subjects are plentiful, bedding plants being a great feature; also plants for window boxes. Lobelia, Marguerites, Mignonette, Lysimachia, Zonal Pelargoniums, and Calceolarias are well flowered, but calceolarias are not making quite such good prices this season as usual. Verbenas are well flowered and plentiful. Stocks are still very good. Petunias in 5-inch and 6-inch pots are plentiful, and of good quality; many of the fringed-edged type are now grown. Fuchsias are well flowered and plentiful. Hydrangeas vary in quality; some are very good. The variety Thomas Hogg is not abundant, but there are large supplies of H. hortensis. Some plants of Erica hyemalis are seen. E. ventricosa magnifica, also E. Cavendishii, in all sizes, are well flowered. Herbaceous Calceolarias are very good; also the ordinary yellow sort, in 5-inch pots. Roses of the Rambler type are abundantly flowered; they are rather too plentiful, and do not make such good prices as they did a few years ago. Ferns are abundant in all sizes; their prices remain fairly constant, although some growers clear their stock to costers at such prices as they offer. Palms of all sizes are well supplied; also Aspidistras, Dracænas, and various other foliage plants.

CUT FLOWERS.

Supplies of all subjects are abundant and trade is rather quiet. It is difficult to quote accurate prices, for they fluctuate so much, and to clear the stocks the salesmen greatly reduce the prices late in the day. Souvenir de la Malmaison Carnations are very good, also the American varieties. Mr. Burnett's pink variety is a favourite, also a scarlet kind from Mr. Smith (Enfield). White Perfection is one of the best for flowering all the year through. A few Camellias are seen, but in warm weather the petals fall, even before they are fully expanded. Lilioms are well supplied, and include L. auratum (of fine quality), L. candidum and L. longiflorum. Richardias (Callas) are also plentiful. Gladioli of various sorts are good; G. Colvillei being most in demand. Some good Daffodils are seen, but they will soon be over for the season. Sweet Peas are abundant; in warm weather they do not keep well. Poppies have become favourites, especially the best varieties of the Iceland type. Double Zonal Pelargoniums sell fairly readily, but during the summer the single bloom is of little value, except where it can be cut, gummed, and put into water without being packed. The same applies to the show varieties. Stephanotis and Gardenias are plentiful. Roses include some fine flowers—Mrs. J. Laing and other Hybrid Perpetuals; among Teas—Niphetos, Bridesmaid and Madame Chateau are most appreciated. Tulips consist chiefly of the Darwin type. Mignonette is very good. Lilioms have been plentiful save one day last week, when supplies were short. Yesterday, however, they were abundant, and the prices were much lower. Hardy foliage needs to be purchased with care, as the new growth is not well matured. Asparagus, with the exception of A. Sprenger, is also a little doubtful. Ivy is also making its new growth, and the foliage is not yet well matured. A. H., Covent Garden, June 8, 1910.

DEBATING SOCIETIES.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.—A meeting was held on Tuesday, the 8th ult., in the Dining Hall, Elstree Schools. Mr. W. J. Pritchard, the honorary secretary, gave a paper on "Floral Decorations for the Home." To illustrate his remarks he had arranged various displays, including a dinner table decorated with Carnation Enchantress and Asparagus Sprenger; also another with Azalea mollis and numerous vases of Roses, Carnations, &c. Mr. Pritchard treated his subject in an exhaustive manner.

NEWBURY GARDENERS'.—The first outing of the members took place on Wednesday, June 1, the excursion being arranged to Highclere Castle, and the famous shrubberies at Milford. The weather, which appeared none too promising in the morning, proved pleasantly fine, and the gardens and grounds were seen in their early summer beauty. The party numbered about eighty members of the Association. Mr. A. W. Blake, gardener at Highclere Castle, acted as conductor. At five o'clock a return was made through the park to the "Carnarvon Arms," where, in the Magistrates Room, through the hospitality of the Earl and Countess of Carnarvon, tea was provided. The party next visited Milford for inspecting the famous shrubberies. The Rhododendrons were in the full beauty of bloom, and their delicate tints, set amid surrounding greenery, made a charming picture. Standing at the picturesque Milford House, the visitors looked out over the shimmering surface of the lake, on which many waterfowl disported themselves, across to the classic outline of the Temple, and they could not fail to be impressed with the beauty of the spot.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 4, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Over the kingdom generally the conditions were mostly cloudy or overcast, while showers or periods of steady rain occurred rather frequently, especially in the western districts. Thunderstorms were experienced at many places in the north-west, north, and north-east of England on Tuesday and Thursday; thunder was heard at Durham on Wednesday, and at Southport, Lancaster and Douglas on Saturday.

The temperature was above the normal in the eastern half of England, the greatest excess being 1.5° in England E., elsewhere it was below it, the greatest deficit being 2.9° in Scotland W. and Ireland N. The highest of the maxima were recorded on rather variable dates, but mostly between the 1st and 3rd. They ranged from 72° in England N.E. and 71° in England E. and the Midland Counties to 62° in Ireland N. The lowest of the minima varied greatly in the date of occurrence. In Scotland E. the thermometer fell to 30° (at Balmoral on May 29th), in Ireland N. to 35°, and in several other districts to a little below 40°. In England E. and N.W. the lowest reading was 43°, and in the English Channel 46°. The lowest grass readings reported were 27° at Crathes and Balmoral, 29° at Markree Castle, 30° at West Linton and Hereford, 31° at Llangammarch Wells, and 33° at Sheffield.

The bright sunshine was less than the normal except in Scotland N. and E., the deficiency being considerable in the western districts. The percentage of the possible duration ranged from 33 in Scotland N. and England E., 37 in Scotland E., 36 in the English Channel, and 35 in England S.E. to 26 in Ireland S. and Scotland W., and to 23 in England N.W. and Ireland N.

THE WEATHER IN WEST HERTS.

Week ending June 8.

Frequent thunderstorms on one day.—During the past week there occurred only one cold day and but two cold nights. On the warmest day the temperature in the thermometer screen rose to 67°, and on the coldest night the exposed thermometer fell to within 4° of the freezing point. The ground is at the present time 2° warmer at 2 feet deep, and 4° warmer at 1 foot deep, than is seasonable. Rain fell on the first and last days of the week, and to the total depth of about half-an-inch. Nearly the whole of this amount, however, fell during thunderstorms on the 7th inst. Late in the evening of that day the rain was falling for five minutes at the rate of 1½ inches an hour. Shortly before eleven o'clock in the morning one of these thunderstorms passed almost immediately over Berkhamsted. A few drops of rainwater have come each day through the bare-soil percolation gauge, but none at all through that on which short grass is growing. This is the first time this year that there has been no percolation through the latter gauge. The sun shone on an average for 5½ hours a day, which is three-quarters of an hour a day short of the mean duration at this period in June. On one day no sunshine at all was recorded, whereas on another day the sun was shining brightly for 14 hours. Light airs have alone prevailed. In the early part of the week they came from some southerly point, and afterwards mostly from the north-east. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by five per cent. A large bush of the wild dog Rose growing in my garden came first into flower on the 3rd inst., or two days earlier than its average date for the previous 24 years, and one day later than last year.

MAY.

Rather warm, wet and sunny.—During the first fortnight the weather remained cold, but during the rest of the month there were but few cold days, and no cold nights. Taken as a whole this was a rather warm May. On the three warmest days the temperature in the thermometer screen rose to 75°, which is about the average extreme maximum for the month. On the two coldest nights the exposed thermometer registered 11° of frost—which is the lowest extreme minimum in May since 1892, or for 18 years. In May last year the extreme minimum was, however, very nearly as low. Rain fell on as many as 19 days to the aggregate depth of 2½ inches, which is only about a quarter of an inch in excess of the average for the month. The sun shone on an average for 6½ hours a day, or for half-an-hour a day longer than is usual in May. The winds were, as a rule, rather high, and in the windiest hour the mean velocity amounted to 20 miles—direction west. The wind came from some point between north and east for altogether 344 hours, or for 14 days. The average amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by four per cent.

THE SPRING.

Rather warm and dry, and somewhat sunny.—March and May were both rather warm, while April on the other hand was about seasonable in temperature. As regards rainfall March proved very dry, April dry, and May rather above the average. There was a splendid record of sunshine in March, but a very poor one in April, while in May the record was rather above the mean. E. M., "Rosebank," Berkhamsted, June 8, 1910.

GARDENING APPOINTMENTS.

Mr. L. E. BAILEY, for 2½ years Assistant Gardener to Lord ASHBY ST. LEDGERS, as Superintendent of Park and Pleasure Grounds for the Abertillery District Council, Monmouthshire.

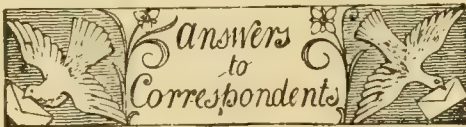
Mr. J. W. PONTON, for the past 2 years Foreman at Hartham Park Gardens, Corsham, Wilts., as Gardener to O. F. WATERFIELD, Esq., Cuddington Grange, near Northwich, Cheshire.

Mr. H. TODD, for the past 5 years Gardener at Owston Hall, Doncaster, as Gardener to Colonel T. H. MORRIS, The Lodge, Halifax.

Mr. R. STEVENS, for the past 5 years Foreman to E. WORMALD Esq., Grass Farm House, Finchley, as Gardener to Captain CLIVE, M.P., Whitfield, Allensmore, Hereford.

ENQUIRY.

MACHINE FOR CLEANING SEEDS.—Can any reader inform me where I can obtain a small and inexpensive machine for cleaning seeds? W. S.



ALMOND LEAF WITH CURIOUS GROWTH: T. C. The leaves are affected with "blister." See reply to C. H. under Peach leaves, in the last issue, p. 376.

BEECH BARK INFESTED WITH INSECTS: W. J. The trees are affected with the felted Beech-coccus. Scrub the bark with caustic alkali wash. This pest attacks the main stem principally, so that the smaller branches and shoots will need no treatment.

BOOK ON THE FIG: G. C. P. *The Fig, Mulberry, and Quince*, in the "Guide to Gardening" series published by Mr. L. Upcott Gill, The Bazaar Office, Drury Lane, W.C.

BLACK CURRANT FRUITS DROPPING: R. R. L., Jersey. We find no trace of disease, and cannot suggest any reason for the failure of the fruits to set.

CARNATION: H. R. The white flower you describe as a sport from the yellow variety *Cecilia* possesses good form and excellent petals, but it is not possible to determine its value from a single flower. You should exhibit a plant or plants at the Royal Horticultural Society's meetings held in the Royal Horticultural Hall, Vincent Square, Westminster.

CATTLEYA LEAVES: H. R. The brown appearance of the leaves is due in a great measure to yellow thrips, but it appears likely there is something wrong with the heating and ventilation of the house in which the plants are grown. The house has probably been kept too warm at night and not sufficiently ventilated. Cut off all damaged leaves and bulbs and burn them.

FERTILISATION OF MELONS AND CUCUMBERS: Correspondent. You will find further particulars on the production of Cucumbers in the absence of fertilisation on reference to *Gard. Chron.*, April 1, 1905, p. 201.

INSECTS DEVOURING BEANS: A. H. The pests are millipedes. See reply to C. P. under wire-worms in soil, in the last issue, p. 376.

MELON SEEDLINGS AND FIG LEAVES: G. W. The young plants of Melon have been killed by a fungus—*Mycosphaerella citrullina*. Water the plants with a solution of sulphate of potash, using 1 oz. of sulphate to two gallons of water. Over-feeding causes the appearance presented by the Fig leaves. No disease is present.

NAMES OF PLANTS: G. W. & S. *Lonicera involucrata* (syn. *L. Ledebourii*).—T. N. 1, *Acæna macrostemon*; 2, *Saxifraga decipiens Rhei*; 3, *Saxifraga rotundifolia*; 4, *S. hypnoides*; 5, *Viola septentrionalis*; 6, *Sedum ternatum*.—G. W. P. We do not undertake to name garden varieties of *Pelargonium* (*Geranium*). The shrub is *Kerria japonica* fl. pl.—S. A. *Sempervivum urbicum*.—R. G. *Renanthera imschootiana*. A very good variety and well flowered.—N. F. P. *Potamogeton crispus*.—W. H. C. 1, *Pyrus Terminalis*; 2, *Cupressus sempervirens*; 3, *Lonicera involucrata*; 4, *Retinospora pisifera aurea*; 5, *Populus albus* (Abele); 6, *Cassinia fulvida*.—I. J. 1, *Ruscus aculeatus*; 2, *Lavandula dentata*; 3, *Colchicum autumnale*; 4, *Asphodelus luteus*; 5, *Veronica gentianoides variegata*; 6, *Crepis aurantiaca*; 7, *Celsia cretica*.—Bridge. 1, *Cephalanthus grandiflora*; 2, *Habenaria bifolia*; 3 and 4, *Orchis pyramidalis*; 5, 6 and 7, forms of *Ophrys muscifera*; 8, *Neottia Nidus-avis*; 9, *Aceras anthropophora*; 10, *Orchis Morio*; 11, *Orchis*, probably *O. militaris*.—H. R. We cannot name varieties of *Pelargoniums*. Send flowers to someone who grows a collection and who is able to compare them.—A. J. H. 1, Next week; 2, *Choisya ternata*; 3, *Piptanthus nepalensis*; 4, *Corydalis lutea*; 5, *Linaria cymbalaria*; 6, *Mimulus glutinosus*; 7, *Alonsoa incisifolia*; 8, not recognised, send when in flower.

PALMS AND BAY TREE KILLED: W. O. Only those on the spot could determine the cause of the trees dying. Ascertain if strong disinfectants are employed in the house, as these, if mixed with the sewage used as manure, might be responsible for the trouble.

PEACHES: A. S., A. Bros., and F. Dunn. The trouble is due to an excess of moisture at the roots. Overhaul the borders in the autumn, and see that proper provision exists for drainage.

PEACH LEAVES: *Anxious*. The leaves are affected with the shot-hole fungus, *Cercospora circumscissa*. Spray the trees occasionally with the ammoniacal solution of copper carbonate.

SLUGS, WOODLICE AND COCKROACHES IN ORCHARD HOUSES: *Inquirer*. See answer to *Inquirer* on page 376 in last week's issue.

STARTING A FLORIST'S AND FRUITERER'S BUSINESS: X. Y. Z. Seeing the competition that is to be encountered in every large town and seaside resort, you will do well to give the matter serious consideration before actually embarking in the business. However, we have known of cases where new businesses have been started in towns supposed to be already amply catered for in that particular branch of commerce, and in which the newcomer, through good business experience and the exercise of tact and application, has succeeded in getting together a good connection. Success in a great measure depends upon the business qualifications and tactful manner of the proprietor and his assistants. There are well-known and reliable salesmen in Covent Garden Market, as well as in large provincial towns in the north and Midlands, whom you could rely upon for the prompt execution of orders for choice flowers. As to the amount of capital required to fit up a shop such as you would require for the class of business you mention, we are unable to give you any idea as to the probable cost of same without being furnished with particulars. Your better plan, however, will be to obtain specifications from two or three local builders, contracting to do all the necessary work for a certain sum within a specified time from the date of receiving the order. Your capital should include a surplus (after the fitting-up of the shop is paid for) sufficient to carry on the business for six months or longer from the time of opening the shop, independent of the daily takings. Your previous experience in the florists' business should prove helpful to you, although we note that several years have elapsed since you obtained that experience.

UNCOMMON LABURNUM: W. J. The tree is *Cytisus × Adamii*, a graft hybrid. It is said to have originated from grafting *Cytisus purpureus* on to the Laburnum, the result being the production, after a time, of branches on the same tree, some bearing foliage and flowers of the Laburnum, others those of *Cytisus purpureus*, and yet others showing intermediate forms between the two. See *Gard. Chron.*, Sept. 24, 1904, p. 217.

YELLOW THRIP ON VINES: J. E. W. If the Grapes are set and have swelled to the size of large Peas, the most effective way to deal with this pest is fumigating with a nicotine compound, but it will not be advisable to fumigate if the Grapes have commenced to colour, and the varieties Lady Downe's Seedling and Muscat of Alexandria must not be fumigated with nicotine in any case. After the crop is cleared, syringe the foliage occasionally with an insecticide, and during the winter, when the vines are dormant, a good remedy is to burn sulphur in the house. No effort should be spared to clean the vines of this pest during the dormant season, as when once established on the young growth it is very difficult to eradicate.

Communications Received.—C. N.—K. & Son—J. W.—W. K. (Aberdeen)—A. E. E.—W. F. (Maidstone)—H. C. C.—J. D.—J. G. W.—F. J. K. (Cincinnati)—O.—A. P.—S. C.—W.—A. D.—C. T. D.—C. F. B. (Dublin)—T. M.—H. F.—J. G. W.—W. B.—C. J.—W. S. B.—H. J. C. (Ulledelt)—T. C. B. & Sons—Director of Botanic Gardens, Rio de Janeiro—R. Caledonian Hort. Soc.—C. N.—E. M.—A. P.—T. B.—L. G. P.—R. L. C.—F. M.—E. A.—M. L. D.—A. M.—Plinius—A. B.—W. J. V.—T. H.—W. F. R.—H. G. A.—Rev. J.—R. G.—W.—L. G.—H. E.—M. M. K.—M. Mc N.—H. R.—A. W.—G. L.—G. W. W. & Co.—W. M.—Enquirer—P. B.—A. R. P.—A Reader—Anxious.



A VIEW IN A RIVIERA GARDEN.





THE

Gardeners' Chronicle

No. 1,225.—SATURDAY, June 18, 1910.

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CYTISUS × DALLIMOREI AND HEREDITY.

AT the Temple Show an Award of Merit was given to *Cytisus* × *Dallimorei*, a very pretty purple-flowered hybrid which was exhibited by the Director of the Royal Botanic Gardens, Kew. The plant has a most interesting history. It was raised by Mr. Dallimore, when foreman of the Arboretum, from the crimson-winged *Cytisus scoparius* var. *Andreanus*, crossed with the pollen of the white Broom, *C. albus*. Two seedlings were raised, one being the purple *C* × *Dallimorei* above-mentioned, the other having bright yellow flowers, like those of the common Broom in colour, but intermediate between the parents is size and other respects. The diversity in colour is remarkable, and is only paralleled among secondary

hybrids or among the offspring of primary hybrids when self-fertilised—the F_2 generation of Mendelian notation. The result naturally raises the question of the origin of *C. Andreanus*, to adopt the name under which it is usually known in gardens.

Cytisus Andreanus was found in Normandy, among plants of the common yellow Broom, by M. A. Puissant, who transferred it to his garden, and in 1886 described it in the *Revue Horticole* (p. 372) under the name of *Genista Andreana*, a coloured plate being also given. The general opinion is that it is a seedling variety of *Cytisus scoparius*, and a careful comparison of the two reveals no difference except in the colour of the wings of the flower, which are of a brilliant deep crimson brown, probably resulting from a suffusion of purple with the yellow, and the significance of this will be seen presently. There is also a tinge of the same colour at the tip of the upper petal. A suspicion that the plant might possibly be a natural hybrid is not borne out by comparison, and there is every reason to believe that it is a seminal variation or mutation of *C. scoparius*. It seeds freely when self-fertilised, and the greater number of seedlings retain their character, many others reverting to the common yellow form, while the remainder show various intermediate conditions. It may be added that a few seedlings are more crimson than the original, and several named varieties of *C. Andreanus* have been distributed.

Both the purple *C* × *Dallimorei* and the sister yellow hybrid, which, for the sake of distinction may be called *C* × *Dallimorei aurum*, have been self-fertilised at Kew, and three seedlings obtained from the latter have already flowered, and show marked dissociation of character. One has the flowers of a yellowish white or pale primrose shade, with a very faint tinge of purple at the tip of the upper petal—the latter character, by the way, being seen in some forms of *C. albus*, to which it shows a marked reversion. The other two are bright yellow, but showing a considerable difference in the size of the flowers. The purple seedlings are less vigorous growers and have not yet flowered, but the results should be specially interesting, because of the apparent absence of yellow from *C* × *Dallimorei*.

Surprise has been expressed that the F_1 generation from the intercrossing of *C. Andreanus* and *C. albus* should show this marked dissociation of character, in other words that it should behave like the F_2 generation, but a little consideration will show that the case is less remarkable than might at first appear. The well-known permanence of specific character has to be taken into account. Species have acquired constancy and uniformity of character by descent through countless generations of individuals. A hybrid has not acquired this character. It may be described as a mosaic, with its component parts in a state of unstable equilibrium, hence the tendency to dissociation and reversion. A mutation may equally be regarded as a sudden production which has not acquired stability, hence the liability to revert to the normal. So far as its distinctive character is concerned, *Cytisus Andreanus* may be regarded as the F_1 generation, and when crossed with *C. albus* it behaves like a species crossed with a primary hybrid, in

which a similar dissociation of the characters of the hybrid parent takes place.

A hybrid is a combination of two diverse ancestories, and its mosaic character may be shown when it comes to form the reproductive cells, pollen and ovules, which unite to form the new individual, but which are not uniform in character as in the case of species. The cause may be sought in the imperfect blending of the hereditary particles, resulting from incompatibility between the diverse elements derived from the two parents, or what has long been called dissociation of the parental characters. A mutation is a sudden departure from the normal, and may combine the tendencies to normal and abnormal development, resulting in dissociation of character in the offspring, as in the case of the wing-colour of *Cytisus Andreanus* when self-fertilised. This purple wing-colour is an abnormal development, and the tendency to return to the normal would naturally manifest itself when crossed with another species, just as it does when self-fertilised. The remarkable thing is that in *C* × *Dallimorei* the purple colour has not only dissociated itself from the yellow, but under the different influence of *C. albus* has suffused itself more or less throughout the other petals of the flower. It will be interesting to see if the yellow returns in any of the *C* × *Dallimorei*.

This is not by any means an isolated instance of the heredity of an abnormal character, and there seems no reason why the predisposing cause of the original abnormal development should not be handed on, like more normal variations. The history of evolution is progressive variation through succeeding generations along definite lines of development, and evolutionary enquiry now chiefly takes the form of ascertaining the courses and machinery of this progressive development. Heredity may be regarded as a form of inertia, a development of the organism along the lines of least resistance, which may operate through countless generations of individuals, giving permanence of specific character. A departure from the normal indicates some change in the balance of the opposing forces, which may lead to permanent modification of the course of development.

This brings us to the question of the permanence of specific character, and the reversion of hybrids. The appearance of seedlings showing pure specific characters among batches of hybrids has often been recorded, and has sometimes occasioned no little surprise. Such cases are spoken of as reversions, and may be regarded as examples of the dissociation of mixed specific characters. A hybrid of mosaic composition, when it comes to form its reproductive cells, may be regarded as producing certain cells in which the characters of one specific parent alone are represented, and the union of two such cells would result in a reversion to the characters of that parent in the F_2 generation. Instances of the kind are not rare among the literature of hybrids, and cannot all be explained away as errors of observation. Here we see how such cases might and probably do arise.

The case is one of considerable biological interest, and continued experiment might lead to further developments, not to mention the possibility of obtaining plants of increased decorative value. *R. A. Rolfe, Kew.*

NEW OR NOTEWORTHY PLANTS.

ASTER FALCONERI.

THE handsome Aster illustrated in fig. 179 was exhibited before the Floral Committee at the Temple Show on May 24 by Mr. W. Marshall, Auchinraith, Bexley, who obtained it from seeds which Messrs. Barr & Sons received from a correspondent in Kashmir, India. On comparing the plant sent to Kew for identification with the specimens in the herbarium, it was found to be identical with *A. diplostephioides*, Benth., var. *Falconeri*, C. B. Clarke. It was evident, on examining the typical form of *A. diplostephioides*, figured in the *Botanical Magazine*, t. 6718, that var. *Falconeri* differed in many points, and, consequently, ought to have a specific appellation.

The most salient features which serve to distinguish the two species are shown in the following:—

A. diplostephioides, Benth. emend: radical leaves, narrowed to a long, slender petiole, margin quite entire; flowering stems bearing small leaves which do not continue to and encircle the capitulum; involucre bracts in a single series, narrow, scarcely overlapping, only slightly hairy; disc-flowers purple.

A. Falconeri, Hutchinson: radical leaves gradually narrowed to a very short, stouter petiole, margin denticulate; flowering stems leafy to the apex, about four of the upper leaves surrounding the capitulum; involucre bracts in two or three series, broadened towards the base and strongly imbricate, very densely and long pilose towards the margin; disc-flowers yellow.

The leaves of the *A. diplostephioides* figured in the *Botanical Magazine* from a Sikkim specimen are shown as having closely denticulate margins. This, however, is due to a mistake of the draughtsman, the original in the herbarium having entire leaves, shortly pubescent on the margin and on both surfaces.

A. Falconeri appears to have a fairly distinct geographical distribution when compared with that of *A. diplostephioides*. It is found at high altitudes in the mountainous regions surrounding the valley of Kashmir, reaching its western limit (so far as known) in the Kamri Pass in the Kishn Ganga Valley, south-east of Gilgit, and it has not been recorded east of the river Sutlej. On the other hand, what I regard to be true *A. diplostephioides* has so far only been found in Sikkim and on the Sikkim border of Nepal. It is very probable, however, that it is common in the lat-

ter territory, the Alpine regions of which have not been much explored.

A few specimens in the herbarium collected in Garhwal and Kumaon, and several from Kunawar, gathered by Mr. J. R. Drummond's collector, and in his possession, appear to me to represent a third undescribed species with the habit of *A. diplostephioides*, but having broader leaves and the basal ones often toothed like those of *A. Falconeri*.

A. subcœruleus, S. Moore, has much the

late, gradually narrowed to the base, subacute or slightly mucronate at the apex, 6-8 inches long, 1½-2 inches broad, thinly papery in texture, margin remotely denticulate, the teeth about ½ inch apart; lateral nerves about six on each side of the midrib, slightly immersed on the upper side, a little raised below; transverse nerves subparallel with the midrib. Stem one-headed, rather densely leafy to the apex. Stem-leaves lanceolate, gradually acuminate to an acute apex, rounded and half-surrounding the stem at the



FIG. 179.—*ASTER FALCONERI*, A NEW HARDY PERENNIAL PLANT: RAY FLOWERS, BLUE; DISC FLOWERS, YELLOW.

Aster Falconeri, Hutchinson, sp. nov. *Planta* circiter 40 cm. alta. *Folia* radicalia numerosa, oblongo-oblanco-lata vel oblanceolata, intrinse sensim attenuata, apice subacuta vel mucronulata, 15-20 cm. longa, 4-5 cm. lata, tenuiter chartacea, remote denticulata, dentibus circiter 12 mm. distantibus, nervis lateralibus utrinque 6 supra paulo immersis subius leviter elevatis, nervis transversis paucis cum costa subparallelis. *Caulis* monocephalus, ad apicem dense foliatus, circiter 40 cm. altus. *Folia* caulina lanceolata ad apicem acutum sensim acuminata, basi rotundata et semamplexicaulia, majora 8 cm. longa, 3 cm. lata, minora 4 cm. longa, 1 cm. lata, integra, utrinque parce pubescentia, nervis lateralibus utrinque circiter 5 e costa crassa ascendentibus. *Capitulum* bracteis foliaceis exterioribus 4 cinctum, 9 cm. diametro. *Involucri* bractea sub-3-seriata, exteriores virides, lineari-lanceolatae, acutae, circiter 2 cm. longae, 3 mm. latae, extus dense pilosae, intus glabrae, interiores leviter pubescentes, margine paulo scariosae apice filiformes. *Floris* radii numerosi, tubus 2.5 mm. longus, viridis, adpresse pilosus; lamina linearis, apice trifida, 4 cm. longa, 2.5 mm. lata, basin versus albida, cetera subcœrulea; stylus exsertus, bilobus, 5 mm. longus; achenia subcylindrica, 3 mm. longa, 1 mm. diametro, parce pilosa; pappus biseriatus, externus tenuis et paleaceus, lineari-lanceolatus, acutus 2.5 mm. longus, minute serrulatus, internus filiformis, 6 mm. longus, minute barbellatus. *Floris* disci aurantiaci; tubus 5 mm. longus, in medio dilatatus et pilosus, ceterum glaber, inferne albo-viridis; antherae 2.5 mm. longae; pappus ut in floribus radii; achenia 3 mm. longa, subquadragulata, parce pilosa; stylus exsertus, lobis 2 mm. longis.—*A. diplostephioides*, var. *Falconeri*, C. B. Clarke, *Composit. Indic.*, p. 45.

India, Kashmir: Southern range, *Falconer*, 561! Tagbol, alt. 10,200 feet, C. B. Clarke, 29241! Pir Panjab, Dr. Stewart, 4281! Gulmarg, Aitchison, 35! Kamri Pass, alt. 11,000-13,000 feet, Giles, 683! Wardwan Valley, Lance, 1381! Astan Marg, Liddar Valley, J. R. Drummond's collector, 14302! in *Herb. Drummond*. Described from a living specimen grown by Mr. W. Marshall, Auchinraith, Bexley, and from a plant growing in the Kew rock-garden.

general appearance of *A. diplostephioides*, but the disc-flowers are yellow and the setae of the pappus are very short and arranged in a single series, not double as in the latter species. It is only known in cultivation, but it is supposed to have come originally from Hazara, in the extreme north of the Punjab, on the western borders of Kashmir.

The following is a description of *A. Falconeri*: Herbaceous, about 15 inches high. Radical leaves numerous, oblong-lanceolate or oblanceo-

base, the larger ones 3½ inches long, 1½ inch broad, the smaller 1½ inch long, ½ inch broad, entire, sparing pubescent on both sides; lateral nerves about five on each side, ascending from a thick midrib. Capitulum surrounded by four leafy bracts, 3½ inches in diameter. Bracts of the involucre in two or three series, the outer ones green, linear-lanceolate, acute, about ¾ inch long, ½ inch broad, densely pilose on the outside, glabrous within, inner ones pubescent, with a slightly scariosus margin, tapering to a filiform apex.

Ray flowers numerous; corolla-tube 1-12th inch long, green, adpressed pilose; limb linear, trifid at the apex, $1\frac{1}{2}$ in. long, $\frac{1}{8}$ inch broad, white towards the base, the remaining part sky-blue; style exserted, bilobed, $\frac{1}{8}$ inch long; achenes sub-cylindrical, $\frac{1}{8}$ inch long, sparingly pilose; pappus in two series, the outer thin and paleaceous, linear-lanceolate, acute, $\frac{1}{8}$ inch long, minutely serrulate, the inner series filiform, $\frac{1}{4}$ inch long, minutely barbellate. Disc-flowers orange-yellow; tube $\frac{1}{8}$ inch long, dilated and pilose in the middle, the remaining part glabrous, greenish-white towards the base; anthers $\frac{1}{8}$ inch long; pappus as in the ray-flowers; achenes $\frac{1}{8}$ inch long, sub-quadrangular, sparingly pilose; style exserted, the lobes nearly 1-12th inch long.

Dr. Aitchison, on the label accompanying his dried specimen of *A. Falconeri*, states that the roots are extensively used by the natives in Kashmir in washing clothes, and that the plant grows profusely at an altitude of from 8,600 to 11,500 feet. The local name is "Sahaur." *J. Hutchinson.*

The flower itself looks at first sight like an *I. tectorum* of somewhat sombre colouring. The segments are all approximately equal, and the standards are spread out at the same angle as the falls. The colour is the curious dull purplish-lilac found in *I. Loppio*, and the mottlings always found in *I. tectorum* are entirely absent. Before the bud opened, my chief curiosity was to see whether the beard of *Loppio* or the crest of *tectorum* had prevailed, and I was not a little surprised to find that neither has really proved itself dominant over the other. The white, purple-mottled crest of *tectorum* is there on a reduced scale, and the beard of *Loppio* appears in the brownish-yellow, hair-like processes, which crown the top of the crest. The verdict of Mendelism on this result would appear to be that the beard and the crest do not form a pair of Mendelian characters.

On the whole, *I. tectorum*, the pollen parent, has had a much more marked influence than the *I. pallida* seed parent. It would no doubt be interesting to go on to the next generation by



FIG. 180.—IRIS × CENGIALTI.
(*I. pallida* var. *Loppio* × *I. tectorum*.)

NOTES ON IRISES.

IRIS × CENGIALTI.

WHEN, in June, 1908, I pollinated with pollen of *Iris tectorum* a flower or two of the dwarf *I. pallida*, which Sir Michael Foster obtained from Monte Loppio, I hardly expected to get any result, for experience has shown that among Irises it is only members of the same group that hybridise at all readily. However, I obtained a pod of sound seed, and from this seedlings were raised early in 1909. Of these, the strongest has just come into bloom for the first time, and it is obvious that the *tectorum* pollen has had very considerable influence.

The leaves attracted my attention from the first, for, although they are similar in shape to those of *Loppio*, in colour and substance they resemble those of *tectorum*. Of the inflorescence it is unwise to speak until the plant has had a chance of more complete development after another year or two's growth. The spathe valves are narrow, pointed and keeled, green at back and scarious at the edge, thus combining the characteristics of the two parents, the spathes of *I. tectorum* being green and pointed, and those of *Loppio* blunt and scarious. The perianth tube is short like that of *I. Loppio*, but of the deep violet-purple colour found in *I. tectorum*.

self-fertilising the present plant, but, unfortunately, the anthers contain no pollen, as I also found to be the case in another inter-group hybrid, namely, *I. olbiensis* crossed with pollen of *I. Korolkowii*.

I. ACUTILOBA × I. KOROLKOWII.

THE result of this cross is a group of particularly pleasing plants. The seeds ripened in 1907 and germinated freely for an *Oncocyclus* in 1909. The young plants came well through last winter quite unprotected, and several have recently flowered. In habit the plants resemble small specimens of *I. Korolkowii*, the brown-purple colouration at the base of the leaves being present in some cases. The stem, about 12 in. high, bears a two-flowered spathe, and the flowers retain the characteristic shape of *I. acutiloba*, with connivent standards and almost horizontal falls. All the segments are pointed, as in *acutiloba*, and boldly veined with a warm shade of chocolate-brown on a white ground.

It is noteworthy that in this case the influence of the pollen-parent has been strong enough to produce a two-flowered, instead of a one-flowered, spathe, and the theory that the *Oncocyclus* and the *Regelia* groups of Irises are closely related would seem to be supported by the fact that hybrids between their members appear to be fertile. *W. R. Dykes, Charterhouse, Godalming.*

NOTICES OF BOOKS.

PANSIES, VIOLAS, AND VIOLETS.*

THIS is one of a series of volumes on *Present-Day Gardening*, now being prepared under the editorship of Mr. R. Hooper Pearson, and editor, author, publisher and printer are to be congratulated upon so excellent a start. The beautiful coloured plates from colour-photography are the most successful by this process I have seen. The form and colours of the flowers are faithfully produced to the minutest detail.

There are many treatises, both ancient and modern, on Pansies and Violets. Their story is a simple one, as simple as their cultural requirements, although it is quite easy to make mistakes in both. Mr. Cuthbertson is an authority on the breeding and growing of Pansies and Violas, but he does not go back far enough in tracing the present highly-developed races to their origin. Philip Miller (1720-70) wrote of varieties with "very large, beautiful flowers," and with regard to their colours he says, "Some have the two upper petals with a deep yellow colour and a purple spot in each, the two middle of a paler yellow with a deep yellow spot, and the lower petal like velvet; in others the petals are white with yellow and purple spots; in some the yellow is the most prevailing colour, in others the purple." Thompson's statement therefore that nothing in the way of blotches on the flowers had been secured before 1830 must be an error.

Bedding Violas had their origin in *V. lutea*, the yellow mountain Pansy-Violet. That this had been improved and used as a garden flower long before Grieve, Fleming and others worked on the species is proved by Sowerby (1835), who says of *V. lutea*, "This should appear to be the origin of some of the garden perennial Pansies." We presume Mr. Cuthbertson has good grounds for the statement (p. 21) that "pollen taken from *V. cornuta*, for instance, will, if put on the common garden Pansy, only give seeds which will produce bedding Pansies," whilst if *V. cornuta* is made the mother parent, the result will be different. Or does he mean by "cultivated species of Pansy" the true *V. tri-color*? With regard to the number of species of *Viola* known to botanists, Sir Joseph Hooker gives 100 as the maximum, although there are many more names.

Such questions are, however, of small account in a work intended for fanciers and growers of Pansies and Violas, and their thanks will no doubt be freely awarded to Mr. Cuthbertson for the business-like way in which he has dealt with his subject. The book is one for every gardener, amateur as well as professional; for the Pansy family is dear to everyone to whom flower growing is a pleasure, and, to have from a past-master in the art, full directions for their perfect cultivation is worth a great deal more than eighteenpence, not to mention the illustrations. A chapter on the Sweet Violet is contributed by the Editor. *W. Watson.*

BRITISH FLORAL DECORATION.†

THOSE who know Miss Maling's *Flowers and How to Arrange Them* and March's *Flower and Fruit Decoration*, both published in 1862, and take the trouble to compare them with the volume now under review, must be astonished at the advance which has been made. Nevertheless, March had an extraordinary popularity, and the flower-stands he invented were everywhere in request, yet to look at the pictures in his book we can but wonder that such was the case. Some 35 years or more ago the late Miss Francis Hope contributed to the *Gardeners' Chronicle* some papers on cut flowers, and these were the first published essays we have seen that treat the arranging of flowers on sensible lines. With others of that gifted

* *Pansies, Violas and Violets*, by William Cuthbertson, with eight coloured plates. (T. C. and E. C. Jack. Price 1s. 6d. net.)

† *British Floral Decoration*, by R. F. Felton. 7s. 6d. (London: A. and C. Black.)

lady's contributions to the literature of gardening they were republished in book form under the title of *Gardens and Woodlands*, a volume that every lover of flowers should possess.

Mr. Felton approaches his subject from a different standpoint than that of Miss Hope, who, to use a common expression, kept flowers in their place. Mr. Felton is apt to lose the sense of proportion, and would like to make floral decorations—of the dinner table, for instance—a dominant feature. Plate and other

we are hurried on, unable to make a pause till, after perusing the lines Mr. Felton has taken from some unknown author to make his peace with any difficult reader, we regretfully close the book. At the same time, it would be too much to say that the book is perfect. In attempting to give reliable lists of plants the author has perhaps erred in giving so many names that the number is embarrassing. This is especially marked in *Roses*; but it occurs also in *Carnations* and *Sweet Peas*, where the lists

interesting remarks, of which may be cited the immense quantities of flowers required for the Metropolis. It is interesting to be told that first-class *Violets* are not produced in sufficient quantities to meet the demand, and that great profits await the investment of capital by growers who could meet that demand. Our insular pride is gratified by the statement that nowhere in Europe or in America are finer flowers produced than in England, and that France, which long held the pre-eminence for artistic beauty in floral decorations, is now, in the author's opinion, surpassed by the productions of English artists. Mr. Felton decidedly leans to dual colour effects, although he does not condemn the use of a variety of flowers of different colours in floral arrangements. It cannot be doubted that one, two and three colours can be arranged with the expenditure of less thought and generally with more pleasing results than a greater number, and it is a point that private decorators should bear in mind when, with the laudable desire of making a decoration specially effective, they are tempted to launch out into profusion in colours and material. In connection with this part of the subject very full lists of flowers that associate well together are introduced, and nothing in the book surpasses these lists in practical value. All the blends are characterised by simplicity and good taste, and if there is one thing open to criticism it is the too free employment of green. Green may strengthen an arrangement if the proper tone, yellow, grey or other tint, as the case may be, is employed; but to use green just because it is green, without duly considering that point, is not to be commended.

Regarding the arrangement of the volume, it may be remarked that a few principal flowers, *Roses*, *Dahlias*, *Carnations*, *Orchids*, *Sweet Peas*, *Daffodils*, *Chrysanthemums*, *Violets* and *Lily of the Valley* are treated in detail, while in further chapters many flowers are grouped together. Table decorations have a chapter to themselves. The coloured and half-tone illustrations are beyond praise. It ought to be added that Sir Albert K. Rollit has written an introduction, and several specialists have aided Mr. Felton in the selection of varieties of the different flowers. *R. P. Brotherston.*

OSTROWSKIA MAGNIFICA.

THIS hardy perennial plant from Eastern Bokhara is the most stately member of the *Campanulaceæ*, an Order containing an infinite number of showy garden plants. The species has been known in English gardens since 1888. In July of that year Messrs. James Veitch & Sons exhibited a plant from their Combe Wood Nursery, and the Floral Committee gave it a First-class Certificate. The species grows 5 feet or more in height, and its flowers measure as much as 5 inches in diameter. The colour of the corolla is generally a shade of pale lilac, the veins being of a darker, bluish-lilac colour. The tint varies, but in most cases this may be due to the different conditions in which the plants are grown. So far as cultivation is concerned, the species needs a deep-rooting medium, in which its long, tuberous roots may extend freely, the best soil being a rich, sandy loam. It produces seeds in an average season, and seedlings can be raised easily in unheated frames, provided the seed be sown soon after it is ripe. The species is seldom propagated by division, it being difficult to divide the plants without injuring the thick roots. The illustration in fig. 181 (reproduced from a photograph by Mr. Fitzherbert) shows a group of plants flowering in Devonshire, and the illustration in fig. 182 represents the flower at its largest size.

Ostrowskia magnifica was discovered at an elevation of 7,000 feet in the Eastern Bokhara by a son of the late Dr. de Regel, who for a long time held the position of Director of the Imperial Gardens of St. Petersburg. The name *Ostrowskia*, as stated in the *Botanical Magazine*, commemorates the services of an illustrious patron of science, N. ab Ostrowsky.



[Photograph by Wyndham Fitzherbert.]

FIG. 181.—OSTROWSKIA MAGNIFICA FLOWERING IN DEVONSHIRE.

accessories dear to the head of the family he would relegate to the sideboard, and we sympathise with him, because we know that if this practice were usual it would render the decorations more effective. At the same time, the tankards and cups maintain their ancient positions in many establishments, being regarded by their possessors with some pride. Mr. Felton's singleness of purpose gives him an advantage in securing the attention and approbation of his readers. Moreover, the style is all his own, and

are very much shorter. There is much need, too, for revision in the purely botanical names. In regard to methods of producing results there should have been fuller notes on operative matters, the manipulation, for example, of bouquets and other formal designs, or, to put it in another way, Mr. Felton seems to have written the book for experts rather than for those whose knowledge of floral decoration is not far advanced.

Scattered throughout the book are many in-



FIG. 182.—*OSTROWSKIA MAGNIFICA*, A HARDY PERENNIAL PLANT: COLOUR OF FLOWERS PALE-LILAC.

FOREIGN CORRESPONDENCE.

CONTROL OF PESTS.

I HAVE just read with much interest your summary of the International Congress of Horticulture, and especially your remarks on Dr. Ritzema Bos's report (*Gard. Chron.*, May 7, 1910).

It has seemed strange to me since my visit to parts of England in 1904 that the Government has not seen fit to establish an efficient service of inspection, demonstration and other means of educating cultivators in the control of injurious insects and diseases. My observations in Devonshire at that time impressed me that the farmers were badly in need of instruction in orchard management.

I can vouch for the work of Dr. Bos and his assistants, so far as concerns the importations of trees, plants, etc., into this State for the past two years. I have caused all the imported stock from Holland to be inspected, and it has been found to be in first-class condition.

I have found in this State—Maryland—that public spraying demonstrations for different pests constitute the best means of educating the growers as to the importance of such operations. *Thomas B. Symons, State Entomologist of Ind., U.S.A., College Park, Maryland, May 20, 1910.*

THE ROSARY.

SELECTED NEW ROSES OF 1909.

ROSES not already in commerce, or that have not been distributed earlier than the November of the previous year, are eligible to compete for Gold Medals or Cards of Commendation at the National Rose Society's exhibition. I will give a brief account of those varieties which were honoured during the year 1909.

Nine received the Gold Medal; 12 received Cards of Commendation. It may be well to mention that three blooms were to be shown, also a plant lifted from the open ground. Of course, in some few cases an exhibitor has considerable choice of selection, and we may be quite sure the strongest and most promising are brought before the judges. The object of exhibiting a plant is that the adjudicators may form an idea of its growth, and this is a very wise precaution, for, beautiful as many Roses are, their indifferent growth quite takes away from their usefulness.

GOLD MEDAL ROSES.

COUNTESS OF SHAFTESBURY has erect growth, and is a free-flowering variety. It is claimed that the flowers last a longer time than most Roses, and it promises to be valuable both for the garden and for exhibition. The colour is a light silvery-carmine, and the petals are edged much after the manner of a Picotee.

MRS. MAYNARD SINTON has a faint touch of blush; otherwise it is a shining white. It is one of the largest Roses grown. This is a vigorous-growing and stout Hybrid Tea, but it will probably be of more use in the exhibitor's box than for general culture.

LADY PIREIE has a habit of growth that promises to make it one of the best bedding Roses, and it is evidently very free in blooming. The colouration is a combination of reddish-salmon, copper, and apricot most difficult to describe.

CLAUDIUS is a self-coloured Rose, with a most delicious scent. The growth is upright and stout. The variety is one of the freest bloomers so far as can be judged by present experience.

MRS. CYNTHIA FORDE.—This is a most distinct shade of bright rose-pink, and very promising.

From its habit of growth and free-flowering qualities it is likely to prove the best bedder in its colour.

MRS. HUBERT TAYLOR is ivory-white, with just a touch of the soft pink found in a new-laid egg when looked at towards the light. It is free-flowering, and has a vigorous, upright growth. Doubtless this will prove a better exhibition Rose than one for garden decoration.

MRS. E. J. HOLLAND.—This is a deep salmon-coloured Rose, but, like many others, it becomes lighter in colour as the flower ages. It is a strong and upright grower, branching from the main growths very freely. Flowers have been exhibited already in grand form.

LESLIE HOLLAND is a really grand crimson Hybrid Tea, probably the best of that colour, and of good size and shape. The growth is about normal for this class, neither weakly nor vigorous.

ETHEL MALCOLM has the growth of the Caroline Testout class, and will prove one of the best all-round Roses. The colour is a rather dull white in the early stages, but it becomes pure white as it opens, when there is just a suspicion of pale pink in the centre.

COMMENDED ROSES.

Cards of Commendation were awarded to the following sorts:—

THERESA is one of the most charming of Roses, and its habit in every way pleased me when growing here last summer. It is one of the most variable-coloured Roses. Deep orange-carmine, and veined with varying shades of pink is the best description I can give. I believe it will make a grand bedder, because the growth is suitable; the plant is free-flowering and the flower fragrant.

CLIMBING LADY ASHTOWN, in every respect except growth, is identical with the well-known dwarf form.

MURIEL JAMISON is deep-orange coloured when young, with a much warmer shade as the flower expands. In growth it resembles Irish Elegance, but the flower itself is distinct. The blooms are single.

THELMA is one of the Hybrid Wichuraianas, and, like them, makes extra vigorous growth, with the typical glossy foliage, and little (if any) tendency towards mildew. The leaves are large for this section, and so, too, are the blossoms, being quite 3½ inches across. The colour is clear rose, with a touch of yellow at the base.

MRS. HERBERT STEVENS has the reputation of being an exceptionally hardy Tea, and the raiser says it has passed through 30° of frost without injury. Very free-flowering, and, if well thinned, will make a good exhibitor's flower. It will be one of the best whites (with a touch of peach colour at the base) available for bedding.

SHEILA WILSON resembles Carmine Pillar in many respects, but the colour is clearer, while shape and stoutness of petal are decided improvements.

DUCHESS OF WELLINGTON is a purely decorative variety, and one of the best for that purpose. The colour is a deep saffron-yellow, with a touch of copper. It will suit any purpose except to climb, and may now and again produce a show flower.

MRS. A. E. COXHEAD possesses a peculiar blending of claret and vermilion, with a glowing shade. The flowers have a good, pointed form, and they are carried boldly upright. Of good habit, this free-flowering, sweet-scented Rose promises to be useful in any form.

JESSIE is one of the most continuous bloomers we possess. This belongs to the dwarf Polyantha section, and has been shown beautifully in pots. It will take first place as a contrast to such varieties as Mrs. Cutbush and Phyllis, and perhaps prove the best crimson bedder where quite dwarf plants are wanted.

MRS. FRANK BRAY, a yellow and apricot Hybrid Tea, that apparently has no fault in habit and freedom of flowering. It may prove to be the best of its colour for massing.

ALEXANDRA ZARIFI is a grand single, of dwarf but vigorous branching habit. Colour: apricot, edged with bright chestnut-red, paling as it expands. A good Rose for massing.

MRS. W. CHRISTIE-MILLER, like Mrs. E. G. Hill and Grand Duc A. de Luxembourg, has its deepest colourings on the outside of its petals; clear vermilion-rose on the outside, with the inside of petals soft blush and salmon; altogether a fine Rose, that attracts the eye at once. It is one of the largest blooms and very showy. The habit is vigorous and branching, and in every way the variety is first class.

It may be added that a new rule comes into force this year. Instead of three, not fewer than six trusses are to be staged. There is also a Silver-gilt Medal to be awarded, in addition to the Gold Medal and Card of Commendation. *Grower, Sussex.*

TREES AND SHRUBS.

RHODODENDRON THOMSONII.

THE different Himalayan Rhododendrons vary considerably in their frost-resisting qualities, *R. Thomsonii* being hardier than several others. Even in districts where it will just pass the winter unscathed, it is apt to present a thin and gaunt appearance, and to see it at its best, out-of-doors one has to go to a Cornish garden, or the sheltered spots along the west coast. It forms a rather upright-growing specimen, somewhat sparingly clothed with oblong leaves from 3 inches to 4 inches in length, very deep green above and glaucous underneath. The flowers are borne in loose trusses, and are very striking, by reason of their deep blood-red colour. Another notable feature is the large, cup-shaped calyx. As might be expected of a species with such richly-coloured flowers, *Rhododendron Thomsonii* has been employed by the hybridist in the production of new forms. One of the oldest is the variety *Ascot Brilliant*, raised by the late Mr. Standish, of Ascot, between *R. Thomsonii* and a garden variety. It is a very striking, hardy kind; but, inheriting as it does the early-flowering qualities of *R. Thomsonii*, the blooms are sometimes injured by late spring frosts.

At Tremough, in Cornwall, some splendid varieties have been raised claiming parentage from *R. Thomsonii*. Particularly noticeable is *Gill's Triumph*, one of the grandest of all Rhododendrons. It is a hybrid between the particularly large-flowered *R. Griffithianum* or *Aucklandii*, as it is frequently called, and *R. Thomsonii*. In size of bloom this variety more nearly approaches *R. Griffithianum*, while the colour resembles that of *R. Thomsonii*.

Rhododendron Shilsonianii is another *Thomsonii* hybrid, obtained by association with *R. barbatum*. The general appearance of *R. Shilsonianii* is about midway between its parents, the colour of the flowers being rich blood-red. A very interesting and showy exhibit of these Rhododendrons was made by Messrs. Gill, of Tremough, at the meeting of the Royal Horticultural Society in April last. Among the many gems was a particularly fine form of *R. Thomsonii*, raised at Tremough, to which the varietal name of *grandiflorum* was applied. It is certainly a very appropriate name for a beautiful Rhododendron.

In connection with *R. Shilsonianii*, mention is made of *R. barbatum*. This derives its specific name from the large hairs with which the leaf-stalks are furnished. In this respect, however, individual plants vary. A few years since I sowed the contents of one seed pod, and the young plants from these seeds varied from very hairy forms to others quite smooth. W.

VARIATION IN STEPHANOTIS.

In the autumn of 1908 a ripe fruit was observed on one of the *Stephanotis* plants in a greenhouse, and four of its seeds were planted. Of the seedlings which were raised from the seeds three have developed alike, but the fourth presents now a striking contrast with the others. (See fig. 183.)

The former plants have become good climbers, are approximately 12 feet in length, have about 47 internodes, and are showing flower-spikes in the axils of some of their leaves.

The fourth seedling is erect and sturdy, shows no sign of a climbing habit, is 1 foot in height, with only 17 internodes, and has no flower-buds.

All the seedlings present the peculiarity that, unlike most climbers, their first internodes are not elongated. It is only after the ninth internode that the well-marked elongation characteristic of the internodes of most climbing plants makes its appearance. Thus the internodes 1 to 9 (reckoning from the collar of the plant) are each $\frac{3}{4}$ inch in length. After the ninth, in the three normal, climbing seedlings the lengths of internode increase rapidly up to 9 inches. In the erect, dwarf specimen, on the contrary, the later—younger—internodes show no greater length than the older and earlier internodes; but remain from about $\frac{1}{2}$ inch to 1 inch in length.

The fact that none of the seedlings shows any sign of the climbing habit till it has developed a considerable number of internodes is interesting, and may be of either biological or evolutionary significance. If of biological interest, this behaviour would seem to indicate that in their natural conditions it is desirable that the plants should get some way up before commencing to twine round the stems of other plants. If of evolutionary significance, it would appear to indicate that the climbing habit has been developed comparatively recently in the life-history of the species. On this view the peculiar behaviour of the erect, dwarf seedling is of particular interest, for in it the climbing habit would appear to be suppressed altogether. It remains to be seen, however, whether the seedling will flower, and, if so, whether it will give rise to a race of erect, dwarf plants of *Stephanotis*. P. G.

THE ALPINE GARDEN.

TWO UNCOMMON SAXIFRAGES.

THE more interesting and handsome of the two plants I have described as uncommon is *Saxifraga pedemontana cervicornis*, which suggests a dwarf form of *S. Wallacei*. The leaves are much more deeply cut and the flowers a trifle smaller than in *S. Wallacei*, but the blooms being less in size in no way detracts from the plant's beauty, and its comparison to *S. Wallacei* is saying a great deal, considering that *S. Wallacei* is admitted to be the finest of the mossy *Saxifragas* in cultivation. *S. pedemontana* is recorded as having been introduced from Piedmont in 1824, but if this is true, it must have been lost again to cultivation till recently. The variety merely differs from the type in having longer stalks to the Summer foliage, more pointed segments, more prominent nerves to the leaves, and more pointed sepals. The variety is a native of Sardinia and Corsica, being found at elevations on mountains ranging from 4,800 to 7,500 feet, and may, therefore, be expected to prove perfectly hardy in this country. The plant is not more than 3 inches high. It produces its large, white flowers in corymbose panicles, and in such numbers that even small plants are conspicuous for a considerable distance. The flowers are erect and bell-shaped, as in *S. Wallacei*, this form being determined by the long claw to the broad petals. The form of the leaves is more suggestive of the horns of the fallow rather than the red deer. The plant is of densely tufted habit, and with me proves perfectly amenable to pot culture, for which its

short, leafy shoots render it eminently adapted. At the same time it makes a charming subject for the rock-garden. The whole plant, with the exception of the petals, is covered with a dense, glandular pubescence, which gives off a strong, aromatic or musky odour that is by no means disagreeable. It is more glandular than usual, but that is a character that varies considerably in *S. geranioides*, *S. pedatifida*, *S. Wallacei*, and possibly others.

The other plant to be mentioned is variously named *S. pedatifida Prostii*, *S. geranioides angustifolia* and *S. Prostii* of Sternberg. It is so distinct from the first two that Sternberg's name might well be kept up. A specimen I have had in cultivation for the past two years has grass-green leaves that are perfectly smooth except for a fringe of long hairs on the petioles, being quite devoid of the glands covering the leaves of its near relations above mentioned. *S. pedatifida* has leaves of a dull, glaucous hue and a musky odour, while *S. Prostii* is quite scentless. The form of the flowers and the attenuated base to the petals show, however, that its relationship lies with the above-mentioned. The densely-tufted habit is similar to that of *S. pedemontana cervicornis*, but it is less showy. J. F.

RANUNCULUS SEGUIERI.

THIS valuable plant has only this year become known to me, for, while *R. glacialis* is common



FIG. 183.—VARIATION IN SEEDLINGS OF STEPHANOTIS.

enough in cultivation, its Dolomitic counterpart, *R. Seguieri* remains unaccountably rare. It replaces *glacialis* in the limestone Alps which the glacial Buttercup avoids, and is easily recognisable, at first glance, as being a very close relation. I first saw it in unfavourable conditions, where its beauty was eclipsed by the solid, snowy glories of *R. parnassifolius* in a splendid form. This was on a high, shingly ridge in the Misurina Dolomites; and *R. Seguieri*, clustered on the slopes, seemed a poor, obscure thing beside the other. *R. Seguieri* seems by preference to haunt rather drier places than *R. glacialis*; its habit is different, too, forming not so much a clump as a colony, connected by a tough, resistant root-system. The foliage differs greatly from that of *R. glacialis*, being scarcely succulent, finely divided, bright green, and even fern-like in general effect. The flowers are large, abundant, and of an unvarying purity of white. Under cultivation it is a very amenable species, flowering from the smallest crowns, and showing, to my mind (or fancy) a curious reversion towards *R. glacialis*, for the young leaves seem darker now and fleshier and more "glacial" than they were on the ridge; unfolding, they are almost exactly like those of *Viola pedata*. This species, less im-

posing, but quite as pure and lovely as *R. glacialis*, is clearly going to be a first-class plant for the moraine, and, so far, seems more patient of pot culture than the other glacial Buttercups. Not, indeed, that these die or languish in pots; but, in my idea, their demand for root room is so enormous that, when confined in pots, their fibres die away yearly and new ones have to be made afresh in spring, so that the crowns of the plant never increase. In open moraine, my plants of *R. alpestris* are clumps by now of some dozen central stocks or more; contemporary plants in pots, from the same batch and shingle-bed, are still, at their best, two or three small and un-increasing crowns; planted out, they immediately "ramp."

R. PARNASSIFOLIUS.

I must add here, too, a note on *R. parnassifolius*. This species, at its finest, is, to my mind, the king of its family—dark, succulent, heart-shaped leaves and enormous snowy flowers combining to make it the prime glory of the moraine-garden, where it blooms and flourishes abundantly. But the plant has "forms" to beware of. The Dolomites give the great and grand *parnassifolius*, but my original lot came from the high saddle of Piz Padella in the Engadine. Here the species grows on scarred earth-pans on the hillside, in dense loam, where it develops big, clustered clumps, and seeds freely. On the shingles above Misurina, on the contrary, *parnassifolius* occurs in wet and very heavy clay, growing as a single plant, or with two or three loosely-connected crowns at the most. Its root-system here, too, is not such a big tuft of fibres, but starts from a curious, premorse root-stock. In its whole habit this form is magnificently superior: its superiority in flower may be judged from the fact that while the Misurina plant makes a not unsuccessful effort to rival *Anemone Honorine Joubert*, the Padella plant abundantly produces only the poorest apology for flowers—little diaphanous affairs, totally devoid of any petals, so far as a casual eye can discern. The first year they did this I was humble, though grieved, and attributed the fault to myself. Now, however, that they are repeating the trick, while Misurina plants are gloriously snowy at their side, I am forced to convict the Padella form of incurable ugliness, and to stigmatise it as an unworthy claimant to the august name of *Ranunculus parnassifolius*. Reginald Farrer.

NEW VARIETIES OF MARGUERITES.

WHEN I first saw Covent Garden Market, now 40 years ago, the Marguerite was unknown there. Early in the 'seventies, however, the original *Chrysanthemum frutescens* was taken in hand by the late Mr. Herbst, of Richmond, and he grew good-sized bushes for furnishing flowers. The plants proved so successful that a large number of Camellias were sacrificed in order to provide accommodation for the *Chrysanthemums*.

After a while other forms made their appearance, showing a great improvement both in habit and in flowers, and now, both as a pot plant and for bedding purposes, the Marguerite is grown to an enormous extent, and charming examples may often be seen on costermongers' barrows in the streets of London. Among the poor it forms with the scarlet *Pelargonium* the most popular of all window plants, while in the fashionable districts of the West End it is just as common.

Yellow-flowered kinds have put in an appearance, but at no time have they been grown to any great extent.

Some seven or eight years ago a variety was distributed under the name of Coronation, which showed a decided break away from any form then in cultivation. The peculiarity consisted in the flower having more or less of an *Anemone*-like

centre, formed of short petaloid-like segments. Another in the same way, and known as Queen Alexandra, was put into commerce soon afterwards. Some flowers of this showed the Anemone-like centre well developed, but in this respect there was a good deal of variation, on account of which this particular variety declined in popular favour.

Matters stood thus till a couple of years ago, but since that time new varieties have been numerous. The first, known as Pink Queen Alexandra, was given an Award of Merit by the deputation from the Royal Horticultural Society at the York Exhibition of 1908. In a good form this is a striking plant by reason of the central segments being pink, but it has proved so variable as to disappoint many. Next an Award of Merit was given at the Temple Show last year to a variety bearing the name Perfection. The best examples of this have an Anemone-like centre, which, surrounded by large guard florets, forms a striking head of bloom. This variety, pretty though it is in some instances, has not given satisfaction, as the blooms are not always true to character. Soon after the variety Perfection was distributed a pink-centred form of it was put into commerce under the name of Pink Perfection. It, too, is somewhat variable in character, but when seen at its best it is very pleasing.

A few good examples were noted at the recent Temple Show, but the Marguerite that attracted all attention there was the new Mrs. F. Sander, which was given an Award of Merit. With the group of this variety was shown a plant of Perfection in order to demonstrate the distinctness and superiority of the new comer. The variety, Mrs. F. Sander, is of more sturdy growth than Perfection, while the foliage shows more of a leaning towards the typical Chrysanthemum frutescens. The flowers are, in the largest examples, quite 5 inches across, with a large cushion-like centre, the whole bloom suggesting a very refined example of double Pyrethrum. The long stems of this Marguerite should make the flowers specially useful for cutting purposes. W.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Miltonia vexillaria.—In many collections plants of this species and its varieties will have passed their flowering stage and entered upon a short period of rest. Immediately the spikes are removed the plants should be taken from the Cattleya house to a cool, shady position in the intermediate or cool house. During the next month or six weeks they will require but very little water. *Miltonia vexillaria* is best repotted or top-dressed in August. Plants of *Miltonia Phalænopsis* that require more root-room may be repotted as soon as the young breaks appear. Place the plants in pots or shallow pans as small as possible, as they do not care for much root-room or any great depth of compost. Afford an extra quantity of drainage and a compost consisting of Osmunda fibre and Sphagnum-moss. Place the plants in a shady position at the cool end of the Cattleya house, and, when fresh roots appear, apply water copiously overhead till growth is completed.

Masdevallia.—All plants of the *Chimæra* section of *Masdevallia* should be removed at once from the intermediate house to a shaded position near the roof glass in the cool house. These plants require plenty of water during hot, dry weather, and they should be taken down every day in order that the foliage may be well washed or syringed with clear rainwater.

Odontoglossum citrosium and *O. Uro-Skinmeri*.—Plants of *Odontoglossum citrosium* may be repotted as they pass out of bloom if repotting is necessary. Use rather small receptacles, such as shallow pans, and make them quite half full of drainage. The potting compost may consist of Osmunda and Polypodium fibres in equal parts. Pot very firmly, as by making the compost solid the pseudo-bulbs retain their plumpness better and longer during the season of rest. The plants should be suspended close to the roof of the Cattleya or Mexican house, and be kept well supplied with moisture throughout the growing season, spraying them overhead several times a day during hot weather. *O. Uro-*

Skinneri and its variety *alba* thrive well on a rather dry shelf in the cool house; they will soon show their flower-spikes. From now till growth is finished afford them an abundance of water at the root, but after the flowers fade and growth is complete, keep the compost on the dry side. Every care should be taken to protect the spikes while in a young state, as they are very brittle.

Calogyne.—Plants of *C. asperata* (Lowii) that have passed out of bloom and have their growths well advanced should now be repotted. Select rather large pots, which should be about half full of broken crocks, making the drainage secure with a thin layer of rough Sphagnum-moss. Pot firmly, using Osmunda and Polypodium fibres in equal parts and cut up moderately finely; plenty of small broken crocks may be mixed with the compost. *C. Massangeana* and *C. tomentosa* may also be supplied now with the same rooting materials, but as these species produce pendulous flower racemes, shallow pans or baskets, that may be suspended to the roof of the house, are preferable to pots. Place the plants in a warm, moist corner of the East Indian house, and keep them well shaded from strong sunshine. Afford but little water after repotting, but immediately new roots push out from the base of the young growths, give an abundance of moisture. The rare *C. Foerstermannii*, when suspended in a light position in the Cattleya house, is a free-growing plant, but a difficult one to bloom. *C. Sandera* must be well watered till growth is completed.

Calogyne pandurata thrives well in a warm temperature, but it is not a compact grower, and it is difficult to make the whole plant conform to pot culture. My method is to pot each piece separately soon after growth has started, and by leaving two pseudo-bulbs only behind each leading growth, a strong plant may easily be placed in a moderate-sized pot or pan, and, if of sufficient strength, will bloom just as freely, or perhaps better, than when all the pseudo-bulbs are allowed to remain on the plant. This species may be grown and potted exactly in the same manner as advised for *C. asperata*.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

Coleworts.—Sow seeds of Coleworts in order to raise plants for use in November and December. Seeds may be sown a week later for raising plants to afford a supply early in spring. Rosette is the best variety for the first sowing, but for plants that will have to stand through the winter "Hardy Green" is to be preferred. This last variety will yield supplies just before the first batch of autumn-planted Cabbage is fit for use. Colewort seeds should be sown in an open situation, and in ground that is not excessively rich. As soon as the seedlings are large enough, and ground is available for them, they should be planted in rows 15 inches apart, allowing 1 foot between the plants in the row.

Celery.—Plants to form the main crop of Celery should be planted in the trenches as soon as they are large enough, and before they suffer in the least through having exhausted the soil in which they are now growing. Apply a good watering to the bed before lifting the plants, and be careful in lifting them to retain as much soil as possible about the roots. In the cultivation of Celery the chief requirement is a liberal supply of rich and thoroughly decomposed manure. In order to get the best produce, Celery should be planted in single rows, because the plants can be attended to more easily and in such conditions they are not so likely to become drawn. At the same time, if large quantities are required, it may be desirable to place two or three rows in each bed, allowing a space of 12 inches between the plants each way. Celery plants must never be allowed to get dry at the roots, as this causes an immediate check to growth and they become more liable to attack from the Celery fly. The best preventive measures for this pest is to syringe the plants frequently with tobacco water, lightly spraying the liquid over the foliage at least once a week some time during the evening.

Celeriac.—This plant does not require a trench, but it needs as liberal a treatment as Celery. A liberal quantity of manure should be dug into the ground some time previous to planting, and the plants should be put into rows 18 inches apart, allowing a distance of 1 foot

between the plants in the row. During the growing season it will be necessary to remove all the side shoots, and apply liberal waterings during dry weather, keeping the soil free from weeds by frequent hoeings.

Late Peas.—The latest sowings of Peas should be made at about the middle of June. For this sowing trenches should be made at least 9 inches deep, and a quantity of decomposed manure should be dug into the middle of each trench until they are filled to within 3 inches of the ground level. The seeds may then be sown, covering them with 3 inches of soil, thus leaving the ground perfectly level. Peas treated in this manner are not likely to suffer greatly from the effects of dry weather. When the plants have been staked a mulch of long dung should be applied, covering the whole surface between the rows. Autocrat is one of the best varieties for late sowing, and it seldom suffers from mildew.

French Beans.—Make successional sowings of French Beans. This crop requires rich ground in an open part of the garden. "Canadian Wonder" is a good variety for present sowing. A few rows of dwarf Butter Beans should also be sown and treated in the same manner as French Beans, allowing 3 feet between the rows in each case.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq., Barton Hill, Weetwood, Yorkshire.

Fuchsia.—Plants which are not required to flower very early should have the shoots pinched, and some training will be necessary if well-shaped specimens are required. If the plants are not already in their flowering pots, they should be given this shift without delay, using a rich compost, and one that will allow the water to drain through quickly. Select the strongest-growing varieties for the largest pots. A thin shading may be necessary for a few days after the repotting is done.

Campanula pyramidalis and *C. isophylla*.—Although this species of *Campanula* is cultivated frequently for the purpose of placing in vacant positions of the herbaceous border, a few specimen plants, if arranged on the ground floor of the greenhouse or conservatory, are usually appreciated when they bloom in autumn. As soon as the plants commence to develop their flower-spikes, they should be provided with a neat green stake, and the flowers may be carefully looped up to the centre. Weak liquid farmyard manure may be given at each alternate watering. *C. isophylla* is a beautiful species for suspending in baskets or pots or for using as an edging in the conservatory. This species also requires a manurial stimulant at this season.

Adiantum.—*A. cuneatum* and similar species of Fern having made considerable leaf growth, may be given somewhat cooler conditions. A free circulation of air should be maintained, but cold draughts must be prevented from reaching the plants; such treatment will have the effect of making the fronds more lasting in a cut state. Plants which have already filled their pots with roots may be given alternate waterings with clear soot-water or weak manure water. Moderate exposure to the sun will cause the foliage to assume a lighter shade and harden it somewhat, which is a desirable quality in plants required for winter decoration.

Freesia.—A batch of *Freesia* bulbs should be potted up as soon as bulbs are obtainable, in order to procure a display of flowers as early as possible. Select the bulbs for each pot even in size so that the flower-spikes may be uniform. Pots 5 to 6 inches in diameter may contain eight bulbs each, and the bulbs should be covered only very lightly with the finest particles of the compost. The potting compost should consist of turfy loam and coarse sand, and each pot should be supplied with ample drainage. After potting, the pots may be plunged into sand, and when growth has commenced they should be removed to a light position in a cool frame. The subsequent treatment will consist chiefly in careful watering and attention to proper ventilation, as *Freesias* cannot be forced successfully by the employment of much fire-heat. The plants should be kept always near to the glass, and when the roots have quite filled the pots a top-dressing of some approved chemical fertiliser will prove beneficial.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of NORTHAMPTON, Castle Ashby, Northamptonshire.

Thinning of fruits.—If the Apricots have not already been given their last thinning, this matter should be attended to immediately, being careful not to allow any overcropping. If the fruits are left at distances of 8 or 9 inches apart, there will still be a sufficient crop for a healthy tree to mature. Ascertain that all the fruits left have ample room to develop perfectly. In some cases it may be necessary to loosen the ties or shreds a little from the wall for this purpose, placing pieces of virgin cork between the branch and the wall. Examine the trees frequently for maggots, which appear to be more numerous this year than usual, and be on the watch for other insects such as earwigs and woodlice; these should be trapped immediately they are found to be attacking the fruit. See that the roots are supplied with plenty of water and afford occasional applications of liquid manure to specimens which are freely cropped. Failing the manure water, a soluble artificial manure may be applied, and a watering with clear water given immediately afterwards.

Plums.—The Plums on wall trees may be thinned if this is necessary, removing first of all the smaller and deformed fruits. Gather any that may have fallen and burn them, as these may contain injurious insects.

Peaches and Nectarines.—These fruits are now swelling fast, and it can easily be seen which are most likely to develop best; in cases where thinning is necessary, remove first those fruits that have set at the back of the branches, or any that would be injured by contact with the wall or wires during the process of swelling. There is not much fear that any fruits will drop during the stoning period, provided the trees are in a healthy condition. Therefore, it is not necessary to leave many more fruits than are required to ripen. A distance of 12 or 14 inches apart will yield a sufficient crop, but this distance may be varied according to the variety and vigour of the individual trees, taking care at all times to provide against overcropping. Train in the young shoots carefully, and leave the ties sufficiently loose to provide for the free swelling of the shoots. If the shoots are trained in too thickly, it will mean failure another season. Syringe the trees with clear water frequently and with vigour, using a syringe with a jet nozzle, which can be made to give the required spray by the operator placing the forefinger on the nozzle. I find that the undersides of the leaves can be syringed best by the use of a jet nozzle syringe. The remarks as to the watering of Apricot trees are equally applicable to Peaches and Nectarines.

General work.—Give frequent attention to the watering of all trees bearing crops. Use the hoe freely, for the double purpose of destroying weeds and for maintaining a layer of loose soil on the surface. Some soils are apt to get hard and cracked after watering, but this can be prevented if the hoe is used frequently.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir ERNEST CASSELL, G.C.B., Moulton Paddocks, Newmarket.

Pineapples.—Plants now swelling their fruits will require much heat, and the atmosphere should be saturated with moisture by syringing the walls and paths many times each day. Syringing is to be preferred to throwing buckets of water about the house, causing the paths to remain in a waterlogged condition. Any suckers not required for propagating purposes should be removed as soon as they are large enough to be twisted out with the finger and thumb, being careful not to use a knife for this purpose. It is not too late to repot any plants which were not in a fit condition for this operation when the rest of the plants were treated. Employ a similar compost to that previously advised, and select a dull day for carrying out the operation. Do not apply any manure water to the roots of the plants which have fruits already showing signs of colouring, but, on the contrary, decrease the supply of water, doing this gradually. If this change is brought about too suddenly the leaves will flag, and the fruits, in consequence become tough. When the fruits are about half-coloured, the plants may be removed to a cool, well-ventilated structure in order that the fruits

may finish ripening in conditions that are most conducive to the development of good flavour. The autumn-fruiting plants should soon begin to show the inflorescences. Any which appear inclined to continue growing instead of fruiting should be kept wet and dry at the root alternately, as checks of this description tend to throw the plants into a fruiting condition. Winter-fruiting plants may now be given a rest by keeping the house cooler and by withholding water from the roots, doing this, however, in a degree that will not cause distress to the plants. Successional plants will require very careful attention as to watering and ventilation. There need be little use made of fire heat at this season of the year, but every endeavour should be made to use the sun heat by closing the ventilators early in the afternoon, keeping just enough heat in the water pipes to prevent the temperature falling below 70° at night. Ventilation should be commenced early in the day, gradually increasing it as the sun gains power. In the afternoon the ventilation should be reduced also in a gradual manner, it being undesirable to subject the plants to sudden increases or decreases of heat. Keep the plunging material pressed firmly round the pots, otherwise the soil will dry quickly, and watering will need to be done very frequently.

Grapes.—This is the season of the year when scalding of the berries is liable to take place, unless particular care is given to ventilation and to the regulation of the atmospheric conditions. Some varieties are more often damaged in this way than others, such, for instance, as Madresfield Court, Muscat of Alexandria, and Lady Downe's. There is no better preventive measure than paying attention to the ventilation and keeping theinery rather cooler during the period which precedes the stoning stage. Later, when the berries commence their second swelling after the stoning stage, there will be no further trouble in regard to scalding. Some gardeners shade the glass, but this is not necessary, for it will be found that scalded berries are burnt on the side away from the sun just as much as on the near side. Ventilation during the night serves to toughen the skin, and in this way is useful in preventing scalding.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

Camellia.—Although Camellias cannot be regarded as perfectly hardy in all localities, nevertheless in many districts they may be grown successfully out-of-doors if sheltered positions, screened from hot sunshine, are selected for their culture. The present time is suitable for transferring pot plants to the open ground in the case of those specimens which have finished flowering. By placing them out-of-doors early, they have a longer season for growth and a better opportunity to become acclimatised before the approach of winter. They require a rich-rooting medium and good drainage, the most suitable soil being one of loam, peat and leaf-mould with some road sand and decayed manure mixed with these materials. If pot plants are used, see that the balls of earth are thoroughly soaked before the planting is done. Immediately after planting apply a liberal watering, and afterwards spread a mulch of litter over the ground, continuing to spray the plants in dry weather for some time to come.

Cistus.—The species and varieties of *Cistus* are very closely allied to the *Helianthemum*, which they resemble in general appearance, but are more shrubby in growth. The different species vary greatly in habit; many of them are adapted for the flower garden, others for clothing a wall, whilst those of lesser growth provide beautiful objects for the borders and rock-garden. They have flowers of rich and varied colouring, which usually meet with admiration. Cuttings should be inserted in sandy soil towards the end of July; they will make roots readily, and may be expected to produce flowering plants next year. The following sorts are specially worth cultivation:—*C. algarvensis*, *C. corbariensis*, *C. florentinus*, *C. hirsutus*, *C. ladaniferus*, *C. laurifolius*, *C. lusitanicus*, and *C. purpureus*.

Gourds.—Ornamental gourds, when properly cultivated and trained, make interesting and beautiful objects for clothing arbours, pergolas

and other positions where strong supports can be afforded them. It is quite time the plants were placed in their permanent positions. When this has been done they will require frequent attention in regard to tying and regulating the growths, and copious waterings during the season. Syringing with clear water late in the afternoon will encourage them to make extra good growth and may keep the foliage clean. Applications of chemical manure from the farmyard in a sufficiently diluted form are beneficial. If the fruits are carefully harvested they will retain their ornamental characteristics for many months.

Seasonable notes.—Now that the summer bedding has been completed, time may be obtained for picking off any dead flowers to prevent seed-pods forming, as this will enable the plants to make growth much more quickly. The plants in pots, vases or window-boxes will need daily attention as to watering owing to their restricted rooting medium. These plants frequently suffer most during showery weather, it being sometimes thought that the roots are sufficiently moist without examination, whereas most of the rains may be thrown off by the foliage, and, in nearly all cases, the rains are insufficient to thoroughly soak the soil throughout the pot. It must also be remembered that the receptacles are frequently constructed of very porous material. These plants will need careful staking and tying, that they may have a decorative appearance from all points of view. Strong-growing herbaceous perennials planted in shrubberies and borders may be given a mulching, and if the ground is of a close nature, it should be forked up before the mulch is applied. In the quarters provided for Dahlias it will be necessary to set traps for earwigs. Supply copious waterings to Sweet Peas when in flower and remove the flower-spikes as they fade, this being necessary to prolong the flowering season. Seeds of *Polyanthuses* and similar plants which it is intended to save, should be gathered and placed in trays to dry.

THE APIARY.

By CHLORIS.

Increasing stocks artificially.—Many beekeepers who are away from home all day, or whose bees are some distance from home, would often be glad to increase their stocks artificially if they knew how to do this. The following is a good method of obtaining three stocks from two. Choose a fine day, when the bees are flying freely, then take two good colonies, having stores of honey and an abundance of brood. If one hive contains ten frames of brood, take half of them and, with a goose quill, brush off all the bees. Place these frames containing eggs and sealed brood in the centre of the new hive, and fill in the space on both sides with full sheets of wired foundation. The hive from which the frames have been taken must be made up in the same manner. The new hive should next be placed on the site of the second strong stock, which is removed to another part of the apiary. The flying bees will take charge of the brood and eggs, and from these latter will raise a new queen. The second will suffer very little, as the nurse bees and hatching brood will soon bring it up to a good strength. Thus one hive has supplied brood and another sufficient bees to carry on the work successfully in the new hive. It will be a great advantage if the beekeeper has a spare queen in a nucleus hive. This can be caged in a pipe cover cage on one of the centre combs, and in 24 to 36 hours she may be liberated. If the queen is liberated at once the bees may "ball" and kill her. In fact, they may not take kindly to her after the time named, so that it will be necessary to note the behaviour of the bees towards her when she is liberated, and if they tug at her legs or attack her in any manner, she must be caged again until the next day. Failing this, a sealed queen cell may be cut out of another hive when the bees have commenced to build queen cells in the new hive. Cut out a circular piece of comb from the centre comb and in it gently fix the sealed queen cell with the aid of pins. The new queen cells may be destroyed when it is found that the added cell has not been injured. If a number of queens are easily obtainable, bees may often be induced to accept one in the evening by liberating her at the entrance, and using no smoke; a virgin queen introduced in this manner is almost certain to be accepted.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

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Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 21—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. W. Cuthbertson and Mr. Jas. Grieve on "Fifty Years among Pansies and Violas.") Horticultural Show at Liverpool in conjunction with the Annual Show of Roy. Agric. Soc. (3 days.) Roy. Oxfordshire Hort. Soc. Sh.

FRIDAY, JUNE 24—Midsummer Day. Quarter Day.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—60.5°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 15 (6 P.M.): Max. 67°; Min. 49°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 16 (10 A.M.): Bar. 30.0; Temp. 62°; Weather—Overcast.

PROVINCES.—Wednesday, June 15: Max. 62° Chelmsford; Min. 56° Scotland S.E. coast.

SALES FOR THE ENSUING WEEK.

THURSDAY—

Hardy Bulbs and Bedding Plants, at 1.30; Palms, Plants, Ferns, Bays, &c., at 8; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Forcing Plants by Electricity.

Evidence is forthcoming from time to time that plants subjected to the influence of electricity grow faster and mature more quickly than others cultivated without this influence. Though we are far from understanding the nature of the effects produced by an electric discharge on plants, the large-scale experiments recently made at Evesham and elsewhere would appear to indicate that in the intensive cultivation of the immediate future electric culture will find a place. Many years ago, Lemström claimed to have demonstrated the accelerating influence of the electric discharge on the growth of crops, and now the recent experiments made by Mr. Newman on land belonging to Mr. Raymond Bomford, at Salford Priors, near Evesham, appear to justify Lemström's conclusions.

Mr. Newman's experiments, a summary of which is published by Mr. J. H. Priestley, in a recent issue of the *Journal* of the Board of Agriculture, were carried out by means of a better apparatus than has been used previously for the purposes of electrifying the experimental plants. Into the technical details of the electric installation we need not go; it will suffice for our present purpose to say that a continuous high-tension current was conducted along wires stretched at convenient heights above the plants, and, that

the arrangements were devised by Sir Oliver Lodge, in co-operation with Mr. Newman. The overhead wires were charged "positively," and thus the current which leaks away from them passes to earth through the plants growing beneath them. When the current, which traverses the plant, thus reaches a certain amount, the germination of seeds and the growth and development of the mature plant show a marked acceleration. If, however, the current exceeds this optimum, a checking of the plant's activities subvenes. To give an idea of the magnitude of the results which have been obtained in large-scale trials:—At Bitton, in 1905, Strawberries subjected to electrification showed, in the case of five-year-old plants, an increase of 36 per cent., and, in the case of one-year-old plants, an increase of 80 per cent. At Gloucester, where, as at Bitton, the wires were charged by means of an influence-machine, Beets yielded 33 per cent. and Carrots 50 per cent. more than the control, unelectrified plants. The experiments with Wheat, made at Evesham in three consecutive years,



MR. ALEX. MACMILLAN.
(Neill Prizeman.)

showed 29 per cent. (1906), 29 per cent. (1907), and 24 per cent. (1908) in favour of electrified crops. Finally, in experiments under glass in five houses, Cucumbers responded by a markedly larger yield of fruit; for instance, in one house unelectrified, 2,477, in one house electrified, 2,753. Though the cost of installation is considerable, for example, the installation of the necessary electrical plants for a greenhouse amounts to about £50; yet, if subsequent experiments confirm the results hitherto obtained, we shall yet live to see enterprising growers adopting electric culture as part of their routine practice.

In the meantime, we hope that those interested in science and in practice will continue these interesting experiments, and that they will succeed not only in demonstrating the practicability of this new method of forcing, but also in discovering whether the effects of the current are due to the direct action of electricity on the living substance of plants, or whether the beneficial effects are of a more indirect nature.

CYMBIDIUM EBURNEO-LOWIANUM (fig. 135).

—While some growers are at their wit's end to make certain species of Orchids grow satisfactorily, others are equally troubled to make the same species keep within reasonable bounds. In the latter category must be placed Mr. H. G. ALEXANDER, Orchid-grower to Lt.-Col. Sir GEORGE HOLFORD, Westonbirt. Our illustration represents one of a pair of plants of *Cymbidium eburneo-Lowianum*, for which Mr. ALEXANDER obtained a Cultural Commendation at a meeting of the Royal Horticultural Society on March 23 last year, the one specimen having 32 spikes bearing together 155 flowers, and the other 19 spikes with 91 flowers, both plants being comparatively young. These plants had been kept growing from the seedling stage in an intermediate-house temperature. In the specimen illustrated, as with many other of the Westonbirt specimens, the large number of flowering growths in proportion to the pseudobulbs is remarkable. Such a condition affords one of the best indications of good cultivation. *Cymbidium eburneo-Lowianum* is described in *Gardeners' Chronicle*, March 23, 1889, p. 363.

THE GARDENERS' ROYAL BENEVOLENT

INSTITUTION.—We desire to remind our readers that the 71st Anniversary Festival dinner in aid of the funds of this Institution will take place on Wednesday, June 22, at the Whitehall Rooms, Hotel Metropole, under the presidency of the Hon. HARRY LAWSON, M.P. The Institution is in great need of increased support, and we hope that a large measure will be forthcoming in connection with this event. Subscriptions or donations are earnestly solicited, and will be thankfully acknowledged by the treasurer, Mr. HARRY J. VEITCH, or the secretary, Mr. GEO. J. INGRAM, 175, Victoria Street, Westminster, S.W.

HORTICULTURAL CLUB.—The next house dinner will take place on Tuesday, June 21, at 6 p.m., at the Hôtel Windsor. Mr. C. T. DRURY, V.M.H., will open a discussion on clouds, rain, rivers, &c.

—The date fixed for the summer excursion is Saturday, July 30. At the invitation of Mr. N. N. SHERWOOD the members will visit Preston Hall, his residence in Essex. Ladies are specially invited. Communications relating to the "Summer Excursion" should be addressed to Mr. HARRY J. VEITCH, Royal Exotic Nursery, Chelsea, S.W.

THE NEILL PRIZE.—We announced last week that the Council of the Royal Caledonian Horticultural Society had awarded to Mr. ALEXANDER MACMILLAN, Westfield Road, Edinburgh, the Neill Prize for the biennial period 1908 to 1910. Mr. MACMILLAN, whose portrait is reproduced, was born in 1835, and his first experience in gardening was gained in a market garden near Port Glasgow, where he served his apprenticeship. He afterwards went to various nurseries and gardens in Scotland and England. During the last 16 years of his active life he was gardener at Trinity Cottage, Edinburgh, and it was here that he did most of his cross-breeding with greenhouse Rhododendrons. Among the varieties he raised may be mentioned "James Whitton," "Nathaniel Bryson," and "Mrs. Macmillan." Mr. MACMILLAN gained a Banksian Medal at Keswick in August, 1892, medals at the International Exhibition in 1892 and Gardening and Forestry Exhibition in 1893, and prizes for Chrysanthemums at the Royal Aquarium, London, in September, 1903. He holds silver medals and five first-class certificates from the Royal Caledonian Horticultural Society, also medals and five cultural certificates from the Scottish Horticultural Association.

PRESENTATION AT LIVERPOOL.—A pleasing function took place at Childwall Abbey Hotel on the 8th inst., when the committees of the Liverpool Horticultural Association and the Liverpool Auxiliary of the Gardeners' Royal Benevolent Institution met to do honour to Mr. T. FOSTER, who, for 14 years officiated as chairman of the committee of the association. Mr. W. MERCER occupied the chair. On behalf of the members he acknowledged the valuable services Mr. FOSTER rendered the association during a period of adverse financial circumstances. As a high token of their

to five o'clock. The gardens are at present in the care of Mr. W. SMITH, who has maintained them in excellent order since his appointment there from the Edinburgh Royal Botanic Gardens.

OPENING OF SAUGHTON PARK, EDINBURGH.—Since the closing of the 1908 exhibition, Saughton Park has been undergoing the necessary work to prepare it for a public park and recreation ground. The opening ceremony by Lord Provost BROWN took place on the 11th inst., in the presence of many thousands of people.

Rose garden will add immensely to the enjoyment of the public. On the day of the opening the grounds presented a fine sight with the bright beds of flowers, the foliage of the shrubs and trees, and the well-kept grass of the place. Bailie INCHES, the convener of the Parks Committee, related the history of the estate so far as it could be learned, and paid a well-merited tribute to the work of Mr. M'HATTIE. Lord Provost BROWN spoke warmly of the work performed by the Parks Department, and expressed the opinion that even more parks and open spaces would be required in the future.



FIG. 185.—CYMBIDIUM EBURNEO-LOWIANUM.

[Photograph by E. T. Lamb.]

esteem, they presented him with their good wishes and a gold keyless watch. Messrs. J. STONEY, J. GUTTRIDGE, and C. A. YOUNG supported the remarks of the chairman.

OPENING OF HOLYROOD PALACE GARDENS.—In accordance with the usual practice, his Majesty the KING has given orders for the opening of the gardens of Holyrood Palace, Edinburgh, to the public on Monday of each week, from June 13 to the end of September. The entrance will be by the Palace by way of the quadrangle and the chapel, and admission can be obtained from two

A large part of the property has been laid out for purposes of recreation, but a considerable portion will be purely ornamental grounds. The whole of the work has been carried out by Mr. J. W. M'HATTIE, the City gardener. The horticultural features are excellent, and others which are in contemplation will make this one of the most attractive public parks in Edinburgh. As far as possible, the horticultural features connected with the old mansion house have been carefully preserved, but many new ones have been added. Among these are the rock and the American gardens, while the

EDELWEISS (LEONTOPODIUM ALPINUM).—In *Le Moniteur du Jardinier*, Mons. F. COMTE gives a useful account of the method he adopts for the successful cultivation of this plant. The seeds, when sown under glass, germinate very rapidly in sandy, well-drained soil, but the young plants are exceedingly liable to damp off soon after the appearance of the cotyledons. To avoid this difficulty the young plants should be pricked out very carefully as soon as possible after the first leaves are developed and kept somewhat dry. After the growth of five to eight leaves the plants may be transferred to small

pots and placed out-of-doors in a sunny place as soon as they have recovered from the necessary disturbance in the potting operations. After the first frost in autumn they are best removed to a cool greenhouse, where they should be kept dry all the winter, little or no water being given them until the small, white central bud shows signs of awakening in February or March. Soon after this they may be planted out in the rockery or open border in a warm, sunny aspect, care being taken to supply lime to the soil; unless the latter precaution is observed the plants do very badly. Plants cultivated in the above manner flower freely in May and June. They should be divided every second season in March or April.

A GARDENER'S RETIREMENT.—MR. WILLIAM MUNRO, gardener, Kininvie House, Dufftown, Banffshire, was recently presented with a purse of sovereigns by the tenantry and employees on the Kininvie estate. For the long period of 55 years, Mr. MUNRO has acted as head gardener. The past 37 years he has spent in the service of Colonel LESLIE, of Kininvie, at Kininvie House, and the previous 18 years with Colonel MARSHALL, of Dandaleith, Banffshire. In handing the gift to Mr. MUNRO, the chairman said that Mr. MUNRO resigned office amid every manifestation of respect and esteem. Those present hoped that he might yet have before him a long and pleasant eventide. Mr. MUNRO, who also received gifts from Colonel LESLIE, returned thanks for the kindness shown him.

CELMISIA SPECTABILIS AS A WEED.—The *Journal of the Agriculturists' and Planters' Association of New Zealand* for April, 1910, contains an interesting article by Dr. L. COCKAYNE on the spread of *Celmisia spectabilis* as a "weed" in its native country. *Celmisia* is a characteristic genus in the Alpine and sub-Alpine flora of New Zealand, and comprises between 40 and 50 species, confined, with one exception, to New Zealand and the outlying islets. *C. longifolia*, one of the commonest species, is also plentiful in the mountains of Tasmania and South-east Australia. The ornamental *C. spectabilis*, of which there is a figure in the *Gardeners' Chronicle*, vol. xlv., 1909, p. 1, and a coloured figure in the *Botanical Magazine*, t. 6653, like many of its congeners, is a herb with a large rosette of thick, rigid, undivided leaves, densely clothed with a white felt on the under surface, and the large Aster-like flower-heads are borne singly on stout scapes overtopping the leaves. According to CHEESEMAN (*Manual of the New Zealand Flora*, p. 308), this species has an altitudinal range of from 500 to 4,500 feet, but it may possibly not have been so great before the natural conditions of the vegetation were disturbed by sheep farming. Indeed, Dr. COCKAYNE states that it has "descended from the higher levels to which, in primeval New Zealand, it was almost confined, until now, in many places, it occupies a large percentage of the ground." The zone to which it has descended was formerly tussock pasture land, the vegetation of which was composed largely of tussock grasses, which sheltered other herbaceous plants of more or less valuable feeding properties. Fires and overstocking have destroyed the tussock grasses in vast areas, and *Celmisia spectabilis* has descended and taken possession. This has taken place to such an extent as to present a serious problem to the farmer. Unlike the tussock grasses, the *Celmisia* is able to withstand fire, "its abundance of cottony hairs rendering it specially inflammable." From the context there seems no doubt that Dr. COCKAYNE intended to write un inflammable, or possibly the fire exhausts itself so quickly that it causes no permanent injury. At least it would appear so, because he states that the burnt plant

soon becomes as vigorous again as ever. As to the remedy, there seems nothing for it but to grub up the *Celmisia* and foster the tussock grasses or such other plants as would restore the pasture.

"THE BOTANICAL MAGAZINE."—The following plants are figured in the issue for June:—

AGAVE FRANZOSINII, tab. 8317.—This species was first introduced to cultivation by Mr. FRANCESCO FRANZOSIN, the date being a little uncertain, although it is known to be prior to 1878. The habitat is also a matter of some conjecture, there being doubts as to whether the plant belongs to Central America or Mexico. Mr. VICENZO RICASOLI, who first described the species in 1888, gives Mexico as its home. A year later it was mentioned by Mr. PHILIP SEWELL in the *Gard. Chron.*, vol. vi., p. 639 (not p. 69, as stated in *Bot. Mag.*), who gave some very interesting particulars of a plant in the late Sir THOMAS HANBURY'S garden at La Mortola. The writer estimated that the total weight of the

long stamens. The bark assumes an ashen-grey colour as it becomes old.

KALMIA CUNEATA, tab. 8319.—This is a rare species, discovered in South Carolina by MICHAUX prior to 1803. It was met with again in 1818 by NUTTALL, being afterwards lost sight of until 1893-94. Seeds were presented to Kew in January, 1904, by Professor SARGENT, and from one of the plants of this batch the illustration in the *Bot. Mag.* was prepared. The species promises to be hardy in this country, and it blooms in July, when few other shrubs are in blossom. The flowers, like other species of *Kalmia*, are produced in clusters, being white with a ring of red dots at the base.

SCUTELLARIA VIOLACEA, tab. 8320.—This species forms a useful pot plant for the greenhouse or stove, the violet-coloured flowers being very attractive, and produced opposite on the rachis, not scattered, as in *S. discolor*, its nearest ally. The plant has been in cultivation at Kew since 1900, and a note on species appeared in *Gard. Chron.*, June 18, 1904, p. 389.

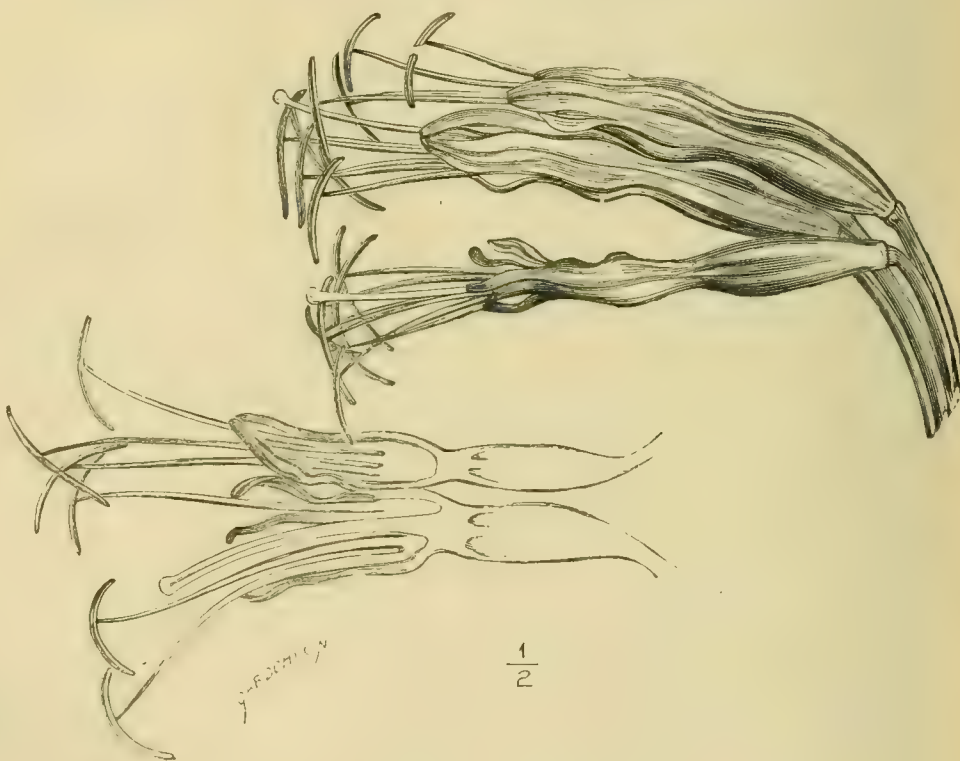


FIG. 186.—FLOWERS OF AGAVE FRANZOSINII.

stem and branches of the La Mortola plant was nearly one-sixth of a ton. It flowered and produced between 70 and 80 seed capsules, the whole estimated to contain 1,500,000 seeds. He further stated that "although other species of *Agave* have flowered, none branch so gracefully nor are any quite so superb in their dimensions." This appreciation of the plant is held by Mr. J. G. BAKER, who terms it "the Prince of the *Agaves*." The individual flowers are greenish-yellow.

FOQUIERIA SPLENDENS, tab. 8318.—This is also an American species, extending through Mexico, Arizona, Southern California, and southwards. It forms a shrub, armed with nearly straight spines, and it makes an effective and almost impenetrable hedge. The poorer families of Mexico plant it closely in a rectangle, leaving an opening at one end, covering the top with brush, thus forming a hut in which they live. The plant thrives well in the Cactus House at Glasnevin, producing narrow, terminal inflorescences about 4 to 6 inches long, with reddish, tubular blossoms crowned with a cluster of

CIRRHOPETALUM BIFLORUM, tab. 1821.—This plant is a native of the mountains of Java, and owes its specific name to the constantly two-flowered scape, a character which forms a link between those with solitary flowers and those having umbellate inflorescences. The long, lateral sepals are purple-dotted; the upper ones being concave and furnished with a long seta. At Kew the plant thrives in the tropical Orchid-house in a teak basket, containing Sphagnum-moss and osmunda fibre.

PUBLICATIONS RECEIVED.—*Thirty-Fifth Annual Report of the Ontario Agricultural College and Experimental Farm, 1909.* (Toronto: Ontario Department of Agriculture.)—*The Victorian Naturalist.* Vol. xxvi., No. 11, March 10, 1910.—*Imperial Department of Agriculture for the West Indies.* Sugar Cane experiments in the Leeward Islands. Report on experiments conducted at Antigua and St. Kitts, 1908-9. Part I., Experiments with varieties of Sugar-Cane. Price 1s. Part II., Manurial Experiments. Price 6d. (Barbados: Issued by the Imperial Commissioner of Agriculture for the West Indies.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

LARGE BARBERRY.—The dimensions of Mr. Vicary Gibbs's large Barberry, noted in the issue for May 28, set me to measuring this morning a bush of *Berberis dulcis* (*buxifolia*) growing here. It is 111 feet in circumference, between 17 and 18 feet high, and it was planted about 40 years ago. The fragrance exhaled during the brief—too brief—flowering period is delicious. *Herbert Maxwell, Monroeth.*

BERBERIS STENOPHYLLA.—It may be interesting to cite a specimen of this shrub, of similar dimensions to that mentioned by the Hon. Vicary Gibbs (see p. 345). It was planted about a quarter of a century ago by the late Mr. C. R. Bick, gardener to Walter Chamberlain, Esq. (a younger brother of the Right Hon. Joseph Chamberlain), at Harborne Hall, Harborne, Birmingham. The site is well sheltered from north and east winds by a screen of tall shrubs in the extensive and beautiful pleasure grounds. From an early period of its installation I have had the privilege of frequently admiring and noting its annual growth, and, some months ago, I found it to measure about 98 feet in circumference and 14 feet in height. It would, however, have attained to even a greater size had it not been curtailed by the too close proximity of an immense bush of the Mock Orange (*Philadelphus coronarius*), and by frequent cutting to prevent too rapid an encroachment upon the narrow flower border. But in recent years it has been allowed to extend on to the sloping lawn, where it finds a more appropriate setting than that of the bare earth. The original growth of the dense centre of the bush is exhibiting evidences of decay. *William Gardiner, Harborne.*

ACACIA ON RAILWAY BANKS.—The Acacia mentioned in Mr. George Paul's note is, I believe, *Robinia Pseudacacia*. The reason for planting this variety on the banks of the French railways is that the fibrous roots may keep the ground in position and render landslips impossible. They are grown as bushes to leave a clear view of the metals. The flowers are well known as a table delicacy. They are dipped in batter, then fried in butter, and served with sugar sifted over them. *P. Aquatias.*

COLOUR IN APPLE BLOSSOM.—The Apple mentioned by Mr. W. Earley, on p. 371, was decided to be Costard by the committee of the Apple Congress in 1883. I have no doubt, from his description, that he refers to the same variety. It is the finest I have seen for the colour of its blossoms. A large tree of this variety formerly grew at Burghley, and the late Mr. R. Gilbert esteemed it very highly as an early kitchen Apple, chiefly on account of its heavy and continuous cropping. I remember this tree bore 9 cwt. of fruit in 1881, and most of the crop was sold wholesale, when gathered, at 10s. per cwt. This was a good return from a piece of ground about 120 square yards in extent. The tree flowered abundantly every year, and it was a beautiful picture when in bloom. Unfortunately, it was cut down a short time after Mr. Gilbert's death. There has been much confusion about the name of this variety. It had been called Catshead at Burghley previous to the Apple Congress, as Mr. Earley distinguishes it now. The *Catalogue of the Horticultural Society*, by R. Thompson, 1842, makes Catshead and Costard synonymous, and then gives Catshead Round, which, I presume, is the variety now under discussion. Scott's *Orchardist*, 2nd edition (1874), describes Catshead as round and irregular in outline, and Costard as "long and somewhat square." Thus he is in opposition to the committee of the Apple Congress. Unfortunately, the compilers of the *Report of the Congress* give only meagre descriptions, and omit the chief characters for identification, viz., the eye and the carpels. The *Fruit Manual* [5th edition, 1884] describes Catshead as "three inches and a quarter broad, and the same in height, oblong, nearly as broad at the apex as at the base." This is in agreement with the *Report of the Apple Congress*; but I cannot find Mr. Earley's Apple in the *Fruit Manual*. It is neither Gloucestershire Costard nor Herefordshire Costard, as described in that work. It

says, "The true Costard is now rarely to be met with, but at an early period it must have been very extensively grown, for the retailers of it were called Costardmongers, an appellation now transformed into costermongers." It is mentioned by William Lawson, in 1597, who, in his quaint style, says: "Of your Apple trees you shall find difference in growth; a good Pipping will grow large, and a Costard tree, stead them on the north side of your other Apples." This character of free growth corresponds with the large tree at Burghley, and I conclude that it and Mr. Earley's were the old Costard mentioned by the above W. Lawson in 1597, which Dr. Hogg said "is now rarely met with." If this Apple is in existence anywhere, it is worth some trouble to preserve it, on account of its beautiful flowers. I quote a description of the fruit which was written in 1887 from fruits off the tree at Burghley: "Eye closed, set in a narrow, ribbed basin; stalk long and thin; skin light green on the shady side, dull purplish red next the sun, changing as it gets riper; fruit sometimes much ribbed and very uneven; tree a strong grower and a sure bearer; bloom a beautiful deep red and large; flesh white, soft, juicy, moderately acid when ripe; a good cooking Apple; ripe at Burghley early in October, 1887." In the collection here, which numbers 173 varieties, I have nothing to equal the above variety for beauty of blossom. The better varieties, in their proper order, are: Lincoln Holland Pippin, Sandringham, Lane's Prince Albert, Golden Spur, Winter Hawthornden, and Rosemary Russet. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

OLEARIA CHATHAMICA AND LEPTOSPERMUM CHAPMANII.—*Olearia chathamica* is now in full flower in my garden. It is one of a number of beautiful plants introduced into this country by Capt. A. Dorrien Smith in 1908. My plant is from 3 to 4 feet high, and as much through. Its leaves are from 4 to 6 inches long and about 2 inches broad, lanceolate, very thick and coriaceous, glabrous above, and soft-white tomentum beneath. Its flower-heads are solitary, 2 inches in diameter, ray florets lavender, disc florets dark purple. It is a plant well worthy of a place in the milder parts of this country, and it is quite distinct from any of the *Olearias* I have yet seen. It grows best in a somewhat damp position in partial shade. Another interesting plant I have now in flower (also from New Zealand) is *Leptospermum Chapmanii*. Its leaves are somewhat similar to *L. scoparium*, but of a more coppery colour. The flowers are crimson, and, therefore, a pleasing contrast to the ordinary white forms, and quite distinct from *Leptospermum Nichollii*, which has blood-red flowers. This I flowered last year. *A. B., Ludgvan, Cornwall.*

EXHIBITION VEGETABLE CULTURE.—I can assure Mr. Gooding that I am not out of sympathy with my employer in respect to vegetable culture. What I tried to put before the readers of the *Gardeners' Chronicle* (see p. 296) was the fact that the present method of cultivating vegetables for exhibition was so artificial as compared to that practised with the crops for home consumption, as to be misleading to the ordinary person. I stated, that in consequence the exhibits provided grounds for friction between employer, gardener, and seedsman, because those who do not realise the methods adopted to obtain vegetables of exhibition quality are likely to be dissatisfied with their own produce. Mr. Gooding would have the readers of this journal to think that vegetables grown for exhibition do not entail much expense. I am afraid that what Mr. Gooding says on this point will not be accepted by those who know even a little on the subject. Mr. Gooding says he has never heard of the use of glass tubes and miniature boxes for Leeks. I note that *Exhibitor* differs with most exhibitors in regard to the preparation of the ground for special crops. He says: "If the ground is thoroughly prepared" (not especially prepared) "specimens will be obtained, not inferior but probably better suited for cooking than exhibition produce." Is not this strong evidence coming from an exhibitor, too? What does this exhibitor mean about the preparation of the land? I should have thought that ground specially prepared was thoroughly prepared, but it seems I am wrong. I fancy I see

such men as Messrs. Beckett and Gibson smile when they read that if Leeks are planted in proper trenches they will develop 6 to 8 inches long, and approaching 2 inches in diameter! I wonder what Scotch growers are thinking who produce Leeks 20 inches long! *A. D.* should know better than say that exhibition Cauliflowers, Potatos and Beans need only ordinary culture. Does he mean Cauliflowers planted 4 feet apart mounted about the stems with manure and daily supplied with water, or Potatos 4 feet apart, Tomatos thinned from 12 fruits on a bunch to two, and Beans planted 15 inches apart in the rows? Is this ordinary culture? Is it economical? Are small men on an equality in such matters with those who control the larger gardens? Another exhibitor (p. 339) says in criticising my remarks: "Mere size is of little importance with present-day exhibitors or judges, but high-class quality is insisted upon." I would ask what is high-class quality in Onions, Leeks, Celery, Runner Beans and Peas if size does not count? In every instance size stands first, but it must be connected with other attributes. *Exhibitor*, in conclusion, admits there are two sets of vegetables—those for table use and the ideal type of vegetable. It is to this I take objection, the artificial production, by the lavish expenditure of space and time, of vegetables that are not the best for house consumption, as admitted by *Exhibitor*. *Practical.*

COLOURING OF AMPELOPSIS AND RHUS TOXICODENDRON (see p. 318).—If Mr. Smith will call here in the autumn I will show him a specimen of colouring in *Ampelopsis* upon our church tower, with a full northern exposure, that may perhaps surprise him, or if he will call on Mr. E. Beckett at Aldenham in September (and I am sure he will be welcome) he can see *Rhus Toxicodendron* growing on a northerly site that could scarcely be excelled in its colouring. My experience leads me to say that it very often happens that some plants colour much more richly on other aspects than they do on a southern exposure. On a west wall here, *Ampelopsis hederacea* has a much richer tint than plants growing on a southern wall. Has not soil something to do with colour in leaves, flowers and fruit? When I grew *Chrysanthemums* I thought blooms from this district were a shade or two deeper in their various tints than the same varieties contributed from some other locality. I find it the same in Apples. Bramley's Seedling and Worcester Pearmain become quite crimson in some seasons. *E. Molyneux, Swanmore Park, Bishop's Waltham.*

IRIS HYBRIDA ISOLENE.—In your report of the R.H.S. meeting (p. 391), you state that *Iris hybrida Isolene*, for which we received an Award of Merit, was raised by the late Sir Michael Foster. Doubtless, we ourselves gave your reporter this wrong impression. The variety, however, is one introduced by Messrs. Vilmorin & Andrieux, of Paris, and we shall be glad if you will mention this fact, as we do not wish to rob them of any credit in the matter. *R. Wallace & Co.*

DIMINISHING FRUIT PROSPECTS.—Our fruit prospects here are somewhat similar to those of *A Southern Grower*. Although Currants and Gooseberries are a good average crop, Apples and Plums are very patchy. In regard to Apples and Plums, some varieties did not flower at all; but in other cases, where the trees flowered well, much of the fruit has since fallen. Cherries, especially Morellos, have set well and look promising for a heavy crop. Pears are a moderate crop, while Strawberries and Raspberries bear heavy crops. *Wilmot H. Yates, Rotherfield Park Gardens, Alton, Hants.*

THE TRUE OXLIP.—Should not a protest be made against the custom of calling *Primula elatior* (Jacq.) the "true" Oxlip? Oxlip is an English word which for centuries has been used to designate the hybrid between *P. vulgaris* and *P. officinalis*. It is the Oxlip of Gerard, Parkinson and Ray, the "bold Oxlip" of Shakespeare, for he would be bold indeed who would dare to apply that adjective to *P. elatior* with its drooping trusses of rather insignificant flowers. To almost the middle of the last century whenever the Oxlip is mentioned we can safely refer it to the common hybrid form which crops up where Cowslips and Primroses grow together. *B.*

SPADE WORK (see p. 318).—Certainly a team of 11 a-side would be a novel competition at a village flower show. There are several reasons though why this suggestion could not be carried out. In some gardens a spade is almost unknown. I rarely see one in this district, because the soil is quite unsuited for such a tool. A four-pronged fork has to be used, owing to the presence of many stones and to the heavy soil. I know the Liscard district well, and there a spade is the universal tool. Men in that locality are experts in the use of the spade, therefore I am not surprised to see Mr. Canning's note. In his district speed in digging is an important matter, as the soil is mainly composed of sand; expert diggers there never think of putting their foot upon the spade. It matters but little whether the ground is dug 6 inches or 18 inches deep for some crops—Radishes, for example, and they are or were largely grown. Circumstances are quite different here. To move the soil 2 feet deep, or more, is a gain, but the bottom soil must be left where it is after loosening it to admit of a free percolation of water. These are the salient points in land cultivation here, and a spade is a useless article. A small shovel is better for taking out the loose soil. *E. Molyneux.*

NOTES FROM A "FRENCH" GARDEN.

ALL the old manure beds have now been cleared of their last crop, which consisted of Cauliflowers. Two beds have been thrown into one bed of 11 feet wide by digging the path in the centre level with the sides. They are either planted with Endive (La Rouennaise), 12 rows in a bed, at 10 inches apart in the row, or with Celery Chemin or Winter Green, putting 10 rows to a bed, 14 inches distant in the row. Cauliflowers sown in May will be planted among the Endives when these are well established. Some growers insert one row of Cabbage Lettuce or Cos Lettuce between each row of Celery, but this is only done where there is a demand for these crops late in July or early in August. The crops require frequent, but light waterings early in the morning or late at night.

The crop of Carrots grown on the old cloche beds has now been cleared. The Carrots are to be followed by the Cauliflowers set among them after the first batch of Cos Lettuce in the middle of April. Cauliflowers need abundant and heavy waterings when the heads are forming. They will be ready by the middle of July, and the ground will then be available for a late batch of Carrot (Bellot) for the October market.

The batch of Cos Lettuce outside has been marketed with little profit, though they were splendid specimens. The ground is now prepared in trenches as for the Melons, for planting Telegraph Cucumbers under cloches. These will be replaced with the frames and lights from the Melons whenever possible.

The Cucumbers receive careful attention as to watering and pruning to encourage a rapid development of fruits, as the period of fruiting is very short, say, till September 20 or 25.

Melons are now swelling and give every promise of a prolific crop. The pruning takes very little time, as the swelling of the fruits prevents much growth. The soil is kept just moist in order to avoid splitting of the fruits in the ripening stage. Ventilation is given freely day and night, and no covering is necessary. Where this crop is extensively grown, great difficulties and losses may be incurred, as no goods can be despatched to the market from Friday night till Monday night, and there is possibility of a glut at Tuesday's market.

Although it is premature to draw plans for next season's work, those contemplating an increase of material, especially imported cloches and mats, should place their orders so that the manufacturers can deliver the goods before September. The mats are sent dry after the sulphating, and this cannot always be guaranteed when ordering in the winter.

Where an extension of the ground or an alteration in the laying out is intended it will not be too early to start laying the irrigation and the drain pipes to have everything in readiness when the season of sowing starts in October. *P. Aquatias.*

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

JUNE 7.—*Present:* E. A. Bowles, Esq., M.A., F.L.S. (in the Chair); Sir Albert Rollit, D.C.L., Sir Arthur Church, K.C.V.O., F.R.S., Dr. A. B. Rendle, F.R.S., Messrs. J. Fraser, F.L.S., W. Hales, R. H. Pearson, J. T. Bennett-Poe, M.A., E. M. Holmes, F.L.S., W. Fawcett, F.L.S., and F. J. Chittenden, F.L.S. (hon. sec.).

Nomenclature of garden plants.—It was reported that the recommendations sent to the Horticultural Congress at Brussels, at which the R.H.S. was represented by Mr. E. A. Bowles and Dr. A. B. Rendle, had been accepted with scarcely any modifications. These recommendations followed the rules for the nomenclature of flowering plants passed at the Vienna Congress of 1905, with the additions necessary to make them apply to garden varieties and hybrids. They will be published in extenso in due course.

Rose de Madera.—Sir ALBERT ROLLIT showed a specimen of the "Rose de Madera" or "Rose de Palo" from Guatemala. The specimen was a woody growth somewhat resembling an open Rose about 3 inches in diameter, at the end of a branch about 1½ inch in diameter. These formations are the result of the attack of a parasite, in this case probably a species of *Phoradendron*, on a flowering plant, inducing a considerable development of tissue in the host. Later, the parasite dies and decays, leaving the tissue of the host intact, showing the impressions where the sucker-like organs of the parasite were in intimate contact with the host. The growths are well figured in Engler's *Pflanzenfamilien*, Abt. I., p. 161.

Fungus on roof.—Mr. HALES showed a specimen of a fungus which was growing in quantity, depending from the roof of Chelsea Old Church. Dr. RENDLE took it for further examination.

Saxifraga Geum, &c.—Mr. JOHN FRASER showed seedlings of *Saxifraga Geum* var. *Colvillei*, illustrating the great range of variability possessed by seedlings, and the probability of the hybrid origin of some forms. There were 78 seedlings in all, of which some had yet to flower. Of those that had flowered three were like the seed parent, two were hybrid forms of *S. umbrosa*, 20 were broad-leaved forms of *S. Geum dentata*, two had the primary flowers ½ inch in diameter, 17 had creamy-white ovaries, two were like *S. Geum elegans*, and five were like *S. Geum serrata*. Considerable difficulty was often experienced in classifying the forms of this section, since the plants produce two sets of leaves, unlike one another in the spring and autumn respectively, and botanists had described foliage without reference to the season.

Iris with bearded standards.—Mr. BOWLES drew attention to an *Iris* shown by Mr. PERRY, a seedling raised by the late Sir MICHAEL FOSTER, having the spathe valves of *Iris pallida*, and probably a seedling from that species, but with a forked stem. The standards were somewhat drooping instead of being erect, and each had on its upper surface a small amount of bearding similar to that on the falls, but less in extent.

Hybrid Primulas.—Messrs JAS. VEITCH & SONS, Chelsea, sent hybrids of *Primula pulverulenta* and *P. Cockburniana*, together with the parents for comparison. The series was as follows:—

1. *P. pulverulenta* ♀ × *P. Cockburniana* ♂ = *P.* × "Unique"; and (2) the reciprocal cross, giving *P.* × Unique and *P.* × Unique improved.
3. *P. Cockburniana* ♀ × *P. Unique* ♂ = *P.* × "Excelsior." This form has bright flowers nearly approaching *P. Cockburniana*, but distinct and, like the other two before mentioned, perennial, whereas *P. Cockburniana* is biennial.
4. *P. pulverulenta* ♂ × *P. Unique* ♀ = an unnamed form approaching *P. pulverulenta* in colour, but of a shade intermediate between its two parents.
5. *P.* × "Excelsior" ♀ × No. 4 ♂ = an unnamed seedling almost exactly like *P.* × Unique, and as its history shows the result of combining *P. pulverulenta* and *P. Cockburniana* in equal proportions.

6. *P.* × "Excelsior" ♀ × *P. Cockburniana* ♂ = an unnamed seedling almost identical with *P. Cockburniana*, but whether perennial or not has not yet been ascertained.

Cheiranthus hybrid.—J. S. ARKWRIGHT, Esq., of Lyonshall, Herefordshire, sent a hybrid between *Cheiranthus Allionii* ♀ and *C. alpinus*. Five or six flowers had been crossed by him in 1908, but only one pod, and from that only one plant, had been obtained. The plant was very vigorous, being bushy, and measuring about 18 inches through; it had been flowering for a month. The flowers were bright orange, but not so deep as those of *C. Allionii*. In the bud they were dark purple, like those of *C. alpinus*, contrasting markedly with the orange-coloured flower. The plant was shown under the name *C.* × *Arkwrightii*. It may be readily increased by cuttings.

Crocus sativus.—In reply to a request for information regarding the cultivation of the Saffron Crocus, Mr. A. W. HILL, M.A., sent the following report:—

The Saffron Crocus is said to have been introduced into England during the reign of Edward III. (A.D. 1327-1377). Two centuries later English Saffron was even exported to the Continent, for in a priced list of the spices sold by apothecaries of the north of France, A.D. 1565-1570, mention is made of three sorts of Saffron, of which "Safren d'Angleterre" is the most valuable. It was evidently produced in considerable quantities, for in 1632 we find in the tariff of the *Apotheke*, of Celle, Hanover, *Crocus austriacus optimus*, and *Crocus communis anglicus*.

In the beginning of the 18th century (1723-28), the cultivation of Saffron was carried on in what is described by a contemporary writer as "All that large tract of ground that lies between Saffron Walden and Cambridge, in a circle of about 10 miles diameter." The same writer remarks that Saffron was formerly grown in several other counties of England. The cultivation of the Crocus about Saffron Walden, which was in full activity in 1594, had ceased in 1768, and about Cambridge at nearly the same time. Yet the culture must have lingered in a few localities, for in the early part of the 19th century a little English Saffron was still brought every year from Cambridgeshire to London, and sold as a choice drug to those who were willing to pay for it.

At the present day, this product is chiefly produced in Spain, the commercial variety distinguished as *Best Valencia* realising from 42s. to 42s. 6d. per lb. (April 23 last).

According to the latest reports from Spain, supplies are difficult to obtain, and as a large proportion of the bulbs have been destroyed by drought, the outlook for the next crop is serious. A considerable quantity of Saffron is annually produced in Persia, but little or none of this finds its way into European commerce.

SCOTTISH HORTICULTURAL.

JUNE 7.—The monthly meeting of this association was held on this date. Mr. Whytock, the president, presided, and there was an attendance of 70 members. Before commencing the business, the Chairman referred to the great loss which the nation had sustained in the death of King Edward VII., and it was agreed to send to his Majesty King George V. a letter of condolence with his Majesty and of congratulation on his accession to the throne.

A lecture on insect pests, with limelight illustrations, was delivered by Mr. Geo. E. Greenhow, Edinburgh and East of Scotland College of Agriculture. Mr. Greenhow gave an exhaustive account of the life histories of the chief insect enemies of the gardener, and of the means which had been found most effective in combating them. He pointed out the necessity for distinguishing between biting insects, like caterpillars, whose food required to be poisoned, and sucking insects, like aphides, which required to be asphyxiated. He explained the formulæ for the most effective sprays and washes.

Awards of merit were granted by the Adjudicating Committee to Regal Pelargoniums Exmouth Rival, Dairymaid, and Lady Decies, exhibited by Mr. JOHN DOWNIE, Edinburgh. The other exhibits were:—Collection of Regal Pelargoniums

from Mr. DOWNIE; Calceolaria Clibranii from Messrs. DOBBIE & Co., Edinburgh; Ox-Eye Daisy Early Queen, from Mr. F. BAILLIE, Stenhouse, Midlothian; Fuchsia Gertrude de Pearson, from Messrs. DICKSON & Co., Edinburgh; May-flowering Tulips, from Mr. E. MATTHEWS, Manor House, Musselburgh; flowers of Primula obconica hybrids, from Mr. D. W. THOMSON, Edinburgh; Ferns, from Messrs. JAMES GRIEVE & SONS, Edinburgh; Streptosolen Jamesonii, from Mr. W. STAWARD, Belford, Northumberland; Heuchera gracillima var. "Posie" from Mr. A. PORTU, Davidson's Mains; various flowers, from Mrs. ALGIE, Hollymount, Co. Mayo.

Eleven new members were elected.

BIRMINGHAM BOTANICAL AND HORTICULTURAL.

JUNE 8.—The first of two special shows arranged to be held at the Botanical Gardens, Edgbaston, during the present summer, took place on the above date. The weather was fine and warm, and the show was well supported. The outstanding feature was a splendid exhibit of Orchids, from W. WATERS BUTLER, Esq., Southfield, Edgbaston (gr. Mr. R. H. Jones). Noteworthy examples were *Miltonia Bleuana*, *M. Phalaenopsis* with 22 spikes of flowers, *Cattleya Mossiae* Golden Sheen, *C. Wellsiana*, *C. Skinneri*, *C. Mendelii* White Lady, *Laelio-Cattleya Aphrodite*, *Cypripedium bellatulum*, *C. concolor*, *Thunia Marshalliana*, *T. Winniana*, *Cymbidium Lowianum*, *Odontoglossum crispum* Jeannette, *O. triumphans nigrescens*, *Calanthe veratrifolia*, and *Masdevallias*. (Gold Medal.)

The Right Hon. JOSEPH CHAMBERLAIN, M.P., Highbury, Birmingham (grower Mr. John Mackay), sent a group of Orchids consisting principally of *Cattleyas*, *Miltonias*, *Epiphrontis Veitchii*, *Masdevallias*, *Lycastes*, *Odontoglossums*, *Cochlioda Noxliana*, and a very well-flowered plant of *Anguloa Clowesii*. (Silver-gilt Medal.)

Sir GEORGE H. KENRICK, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), showed a handsome group of *Miltonia vexillaria*. (Silver Medal.)

RICHARD FENWICK, Esq., Edgbaston, showed a group of well-grown and well-arranged *Odontoglossums*, together with a number of pans of insectivorous plants. (Silver Medal.)

MESSRS. MANSELL & HATCHER, Rawdon, Leeds, had a well-arranged group of Orchids, in which superb varieties of *Odontoglossum crispum* and *O. Pescatorei* formed a bold centrepiece. *Phalaenopsis Rimestadiana*, *Cœlogyne pandurata*, a large unnamed *Acinata*, *Dendrobium velutinum*, *D. thyrsoiflorum*, *Laelio-Cattleya Canhamiana*, *Brassia verrucosa*, and *Physisiphon Loddigesii* were exhibited in splendid condition. (Silver-gilt Medal.)

ROBERT SYDENHAM, LTD., Birmingham, showed a selection of Sweet Peas in rustic silver stands. (Bronze Medal.)

MESSRS. GUNN & SONS, Olton, Birmingham, exhibited a large group of tall pillar Roses, covered with great clusters of flowers. In another part of the hall, Messrs. GUNN showed a selection of *Pyrethrums*, *Poppies*, *Sweet Peas*, and *Viola cornuta purpurea* in good condition. (Silver-gilt Medal.)

MESSRS. BAKERS, Wolverhampton, had a large and effective exhibit of Oriental *Poppies*, *Pyrethrums*, *Lupins*, and *Violas*. (Silver Medal.)

Mr. GEORGE PRINCE, Longworth, Berks., sent a well-arranged group of cut Roses. The best varieties included *Maréchal Niel*, *Laurette*, *Lady Ashtown*, and *Queen Mab*. (Silver Medal.)

Mr. C. H. HERBERT, Acocks Green, Birmingham, showed a group of plants and cut flowers of perpetual-flowering Pink "Progress," together with *Violas* and miscellaneous border flowers. (Silver Medal.)

A Cultural Commendation was awarded to Miss GERTRUDE COPE, Manor House, Northfield, for profusely-flowered specimens of a seedling *Calceolaria* named "The Tiger."

AWARDS OF MERIT.

Marguerite Mrs. P. Sander.—For description of this novelty see *Gardeners' Chronicle*, May 28, 1910, p. 360. Shown by Messrs. SANDER & SONS, St. Albans.

Pyrethrum Queen Mary.—The flowers of this variety are large, double, pink, and borne with freedom. Shown by Mr. G. MILLER, Wisbech.

YORKSHIRE GALA.

JUNE 15, 16, 17.—This important provincial exhibition, the 52nd in succession, was held on these dates in Bootham Park, York. The show was a marked success, being, in the opinion of many, the finest of the series. The entries were more numerous than even at the Jubilee show. Beautiful weather prevailed, so that the attendance on the opening day was large. The groups of plants were exceptionally fine, also the exhibits of hardy flowers, *Gloxinias*, *Begonias*, *Sweet Peas*, *Calceolarias*, and fruits. Messrs. T. RIVERS & SON had a noteworthy group of fruiting trees in pots. The Council and the secretary, Mr. Fred. Arey, are to be congratulated on the excellent management and arrangements.

GROUPS OF PLANTS.

The large groups of plants and the rock-garden exhibits are the features of a York show. On this occasion there were five groups in the largest class, the best being equal to any previously seen at these exhibitions—a bright assembly of beautiful flowers and foliage admirably arranged. It was shown by J. PICKERSGILL, Esq., Weetwood, Leeds (gr. Mr. J. Donoghue). At the back hung tall, weeping *Roses*, with finely-coloured *Acalyphas* in association with *Dracæna Victoria*, *Alocasias*, *Anthuriums*, *Begonia Rex*, and similar ornamental foliage plants. In the centre arose tall *Codiaeums*, excellent in every respect, set in a group of various subjects, with here and there a showy *Orchid*. The front had a bold mass of *Odontoglossums* as a centre-piece, with *Lily* of the Valley, *Caladiums*, and *Crotons* as a border, each corner being flanked by a tall plant of *Humea elegans*. The 2nd prize went in favour of Mr. W. A. HOLMES, West End Nurseries, Chesterfield, who also had a fine display, using similar subjects, rather less imposingly arranged, but beautiful nevertheless. Well-coloured *Codiaeums* (*Crotons*) and *Caladiums*, with a great wealth of *Coleuses*, *Lantanas*, *Ferns*, *Begonias*, *Orchids*, *Dracenas*, and *Roses* made up the principal features of the exhibit. 3rd, Mr. WM. VAUSE, The Nurseries, Leamington. 4th, Messrs. H. SIMPSON & SON, Selby.

There was a class for a similar "display to occupy an area of 200 square feet—one-third smaller in area than the largest class. There were five displays, each one being very pretty. The competition was keen, and the judges had no light task in making their awards. In the end the prizes were given as follow: 1st, JAMES BLACKER, Esq., Thorpe Villa, Selby (gr. Mr. Walton Curtis); 2nd, W. A. HOLMES, Esq., West End Nurseries, Chesterfield; 3rd, J. PICKERSGILL, Esq., Leeds (gr. Mr. J. Donoghue); 4th, Mr. WM. VAUSE. The 1st prize group had a fine background, not overdone with subjects, and the body was well broken up with *Roses*, *Liliums*, *Codiaeums* and *Coleuses*, with a pretty ground, the front having *Orchids* and *Gloxinias* peeping from between *Ferns*, *Sonerillas*, *Caladium argyrites*, and *Ficus radicans*. The back was dominated by a tall *Kentia* and *Dorothy Perkins* *Rose*. Plants of *Filicium decipiens* (not often seen at exhibitions) were included in the group. The 2nd prize group had a pleasing foreground and a rather finer background than the one to which the 3rd prize was given, otherwise there was but little to choose between them.

Prizes to the value of £20 were offered in a class for a collection of plants, in or out of bloom, arranged with foliage plants for effect on a table. The class brought seven exhibits, and these made a beautiful floral display. They were arranged in various styles, and it was a matter of individual taste as to which was the prettiest. The 1st prize was given to a light arrangement put up by Mr. H. WARD, Scarcroft Nursery, York. There was nothing remarkable in the quality of the subjects employed, but they were arranged gracefully. 2nd, J. BLACKER, Esq., Selby (gr. Mr. W. Curtis), who employed *Roses*, *Carnations*, *Cordylines*, *Codiaeums*, *Anthuriums*, &c., in a bed of dwarf ornamental-leaved stove plants.

SPECIMEN PLANTS.

The large, trained plants are always popular with the public, but they are not so finely shown at exhibitions as in former years. On this occasion there were two exhibits of nine stove or

greenhouse plants in bloom, the exhibitors being Messrs. JAS. CYPHER & SONS, Cheltenham, and Mr. W. VAUSE, Leamington, who won in the order named. Messrs. CYPHER had by far the finer plants, these being *Anthurium Scherzerianum*, *A. S. major*, *Azalea Modele*, *Ixora Williamsii*, *Pimelea diosmifolia*, *Erica Cavendishii*, *Ixora Shawii*, *Franciscea eximia*, and *Erica ventricosa magnifica*.

For six stove and greenhouse plants there were three entries, Messrs. CYPHER & SONS again winning the 1st prize, with *Statice intermedia*, *Franciscea eximia*, *Erica ventricosa magnifica*, *Anthurium Scherzerianum* *Wardii*, and others; 2nd, Mr. W. VAUSE, with good *Statice intermedia*, *Clerodendron Balfourii*, and *Erica Cavendishii*.

In the class for three stove and greenhouse plants in bloom, there were five exhibitors, and Messrs. CYPHER & SONS were again placed 1st; Mr. VAUSE showed the best single specimen stove plant, and Messrs. CYPHER excelled in the classes for a specimen greenhouse plant and six ornamental fine foliage or variegated plants.

ROCK-GARDEN EXHIBITS.

Visitors to the York Gala are accustomed to see fine effects produced in the class for a group of hardy flowers, with pool of water, arranged for natural effect. The displays usually consist of large rock-gardens furnished in a most liberal manner with Alpine and hardy flowers, backed with pillar *Roses* and other tall-growing plants. This year there were four exhibits, Messrs. BACKHOUSE & SON, York, winning the 1st prize with a rockery carried out in a bold manner, with huge stones, too newly-hewn to please some critics, but purposely employed with the idea of throwing the flowers into greater relief. In the centre, a narrow path led over a stream, which extended the whole length of the display. There were nooks at either end; these contained such subjects as hardy *Cypripediums*, *Primulas*, *Irises*, with *Ferns* in crannies. The top was lined with tall *Roses*, *Eremuri*, *Bamboos*, *Acers*, and other shrubs. At points of vantage was disposed a wealth of Alpine and herbaceous plants in flower. 2nd, Messrs. WM. ARTINDALE & SON, Sheffield, with a rock-garden and water pool, the latter spanned by a stone arch, rather unnaturally decorated with *Roses* clinging to the rocks. In the general collection of this group, the hardy plant lover had a wealth of choice subjects presented for inspection. 3rd, Mr. S. PICKERING, Rosslyn Street, Clifton, York. A remarkably effective exhibit, the more so as Mr. PICKERING employs no gardener, being an amateur in the strictest sense of the word.

ROSES.

The exhibits of *Roses*, both as cut blooms and pot plants, were large, but the quality was not above the average. For a collection of *Roses* in pots, grouped for effect, in a space of 15 feet by 7 feet, there were two entries. The 1st prize was awarded to Mr. JOHN E. SKAIFE, 60, Clarence Street, York, for a charming display, rectangular in shape, with an undulating front, margined with the dwarf *Polyantha* variety *Mrs. W. Cutbush*. At each corner was a well-flowered standard of *Dorothy Perkins*, the same variety forming a pyramid in the centre, with a row of *Hiawatha* at the back. The body was made up of finely-bloomed H.T. varieties. 2nd, Mr. WM. TODD, Vynor Street, York, with a similar arrangement, but rather weaker blooms.

In a class for a smaller group of *Roses* there were three competitors. 1st, Mr. HY. PYBUS, Monkton Moor, Leeds, who arranged a semi-circular group with many good blooms; 2nd, Mr. JOHN E. SKAIFE, Clarence Street, York; 3rd, Mr. W. LANGSTAFF, Burton Lane, York. Mr. SKAIFE arranged a background with arches of *Crimson Rambler* over balloon-shaped plants of *Dorothy Perkins*, the group falling to almost the floor level at the front, and with two prominent corners surmounted by pillar *Roses*.

The largest class for cut *Roses* was for 72 blooms, in not fewer than 36 varieties. Some choice flowers were shown, there being five competitors. The 1st prize was won by Mr. J. D. HUTCHINSON, Crown Square, Kirbymoorside. Some of his better blooms included *Caroline*

Testout, Mrs. John Laing, Frau Karl Druschki, Duchess of Bedford, Bessie Brown, Victor Hugo, Mrs. J. Cocker, Souvenir de Pierre Notting, Maman Cochet and Mme. Jules Gravereaux. 2nd, Mrs. MAINWARING, Bembridge, Isle of Wight, with many choice blooms, and the others showing considerable damage in the outer petals. Frau Karl Druschki, Comtesse Nadaillac, White Maman Cochet, and Lady Ashtown were very good. 3rd, Messrs. GEO. MOUNT & SONS, Canterbury.

In the class for 48 blooms, four exhibitors competed, the 1st prize going to Messrs. D. PRIOR & SON, Colchester. There were many good blooms amongst others of mediocre quality. A few of the choicer flowers were Lady Mary Fitzwilliam, Bessie Brown, Lady Ashtown, White Maman Cochet, Richmond (excellent), and Medea.

There were four exhibitors in the class for 36 blooms, but the flowers were generally very moderate. The 1st prize was won by Messrs. W. & J. BROWN, Peterborough. Queen of Spain, Captain Hayward, Mildred Grant, and Hugh Watson may be instanced as being specially good. 2nd, Mr. GEO. MOUNT, Canterbury.

The best exhibit of 24 varieties was put up by Mr. GEO. PRINCE, Longworth, Berkshire; this exhibitor also had the winning stand of 18 varieties, and the best stand of 12 white and yellow varieties.

There was competition amongst five exhibitors in the amateurs' class for 18 distinct varieties, Mr. W. HUTCHINSON, Kirbymoorside, winning the 1st prize with flowers of moderate quality.

CARNATIONS.—Five exhibitors arranged groups of Carnations. Much the best display was made by J. PICKERSGILL, Esq. (gr. Mr. J. Donoghue) who showed "Malmaisons" of the Princess of Wales variety, bordered with yellow and scarlet varieties, all the plants being splendidly flowered. 2nd, Duke of NEWCASTLE, Clumber (gr. Mr. S. Barker), with "Malmaison" and border varieties intermixed.

FUCHSIAS.—The class for a group of Fuchsias brought some good plants, especially those shown by J. W. CLARKE, Esq., York, he having pyramids 5 or 6 feet high laden with blossoms from the pot level. Mr. GEO. LEE, York, won the 2nd prize. Mr. W. KETTLEWELL showed the best specimen Fuchsia.

PELARGONIUMS were good and very numerous. Mr. J. R. WEDGWOOD, York, showed the best group of show Pelargoniums; whilst Mr. GEO. LEE, also a local exhibitor, had the finest six plants of these Pelargoniums; Mr. Gladstone, Kingston Beauty, and Mme. Thibaut being among the choicer varieties. Mr. W. F. CROWTHER, York, was 2nd in this class with taller plants, not so effectively bloomed. Mr. HENRY PYBUS, Monkton Moor, excelled in the classes for 12, and six Zonal, or Nosegay, Pelargoniums respectively.

GLOXINIAS were well shown, a magnificent collection put up by Mrs. CRAVEN, York (gr. Mr. W. Walls), gaining the 1st prize, an almost equally fine display winning the 2nd prize for Capt. WALKER, York (gr. Mr. H. Clark). In the class for eight Gloxinias another fine display was forthcoming, this being from the gardens of P. STANCLIFFE, Esq., Northallerton (gr. Mr. George Jarvis).

BEGONIAS were as remarkable as the Gloxinias. There was good competition in the class for a group of tuberous-rooted varieties. Large plants, with magnificent blooms, shown by Mr. THOS. WINN, were placed 1st; those shown by H. G. AKENHEAD, Esq., Acomb (gr. Mr. R. Leadill), were not so big, but more numerous flowered. For eight Begonias of this type, THOS. WINN, Esq., York, was awarded the 1st prize, having big specimens.

The finest display of Calceolarias as a group was made by A. LERTHAM, Esq., York (gr. Mr. C. F. Atkinson). We greatly admired the finely blotched Calceolarias shown by P. STANCLIFFE, Esq., Northallerton (gr. Mr. Geo. Jarvis), in the class for eight plants.

ORCHIDS.

The exhibits of Orchids were above the average for a York show. In the class for a table of Orchids there were two entries. Messrs. JAS. CYPHER & SONS, Cheltenham, won the 1st prize easily. The display was set up in good taste, and included fine varieties of Cattleya Mossiae, Vanda teres gigantea, choice Sobralia, and large, graceful spikes of Odonto-

glossums, both species and hybrids, together with hybrid Cattleyas and Brasso-Cattleyas, Oncidiums, Cypripediums, Miltonias, Anguloas, &c. 2nd, Mr. W. BOLTON, Warrington, with a moderate display set up in a Japanese design, suggesting a rock-garden. There were plants and cut flowers of Miltonias, Odontoglossums, Cypripediums, Cattleyas, and Oncidiums.

Messrs. CYPHER were also placed 1st for 10 Orchids in bloom, having well-grown specimens of Laelio-Cattleya Canhamiana, L.-C. Aphrodite, Miltonia vexillaria, Laelia tenebrosa, Cypripedium Lawrenceanum, Odontoglossum luteo-purpureum, Oncidium macranthum and Cattleya gigas, a very fine display. 2nd, W. P. BURKINSHAW, Esq., Hesse (gr. Mr. J. T. Barker), with Cattleya Mendelii, C. Mossiae, Laelio-Cattleya Aphrodite alba, L.-C. Canhamiana, Cattleya Jupiter, Odontoglossum Pescatorei, Renanthera Imschootiana, and Miltonia vexillaria.

Six Orchids in bloom: 1st, Messrs. J. CYPHER & SONS; 2nd, W. P. BURKINSHAW, Esq. The same exhibitors won in this order for three Orchids in bloom, Mr. J. SUNLEY, Ashleigh, South Milford, being 3rd.

Single specimen Orchid in flower: 1st, Mrs. GREY, with a finely-flowered plant of Vanda tricolor; 2nd, W. P. BURKINSHAW, Esq.; 3rd, J. ROWNTREE, Esq.

In Class 25, for six Orchids in bloom (amateurs), W. P. BURKINSHAW, Esq., won the 1st prize, and Mr. M. FURNESS the 2nd prize.

Single specimen Orchid (new or rare): 1st, W. P. BURKINSHAW, Esq., with Laelia tenebrosa Walton Grange var.; 2nd, W. BOLTON, Esq., Wilderspool, Warrington, with Cattleya Parthenia Prince of Wales.

HARDY FLOWERS.

The principal class in this section was arranged for collections of hardy border flowers, to be shown in spaces not exceeding 15 feet by 6 feet. Four groups were staged, making a grand floral effect. Messrs. WM. ARTINDALE & SON, Sheffield, excelled, having a bank of gaily-coloured flowers representing choice varieties of these easily-grown subjects. 2nd, Messrs. HARKNESS & SONS, Bedale; 3rd, Messrs. G. GIBSON & Co., Leeming Bar, Bedale.

Messrs. GIBSON won the 1st prize in the class for 24 bunches of hardy flowers. Pyrethrum Mme. Munier (creamy centre and pink ray florets), Lychnis viscaria, Geranium ibericum, and Papaver Mrs. Perry were all remarkably good in his collection. 2nd, Messrs. G. LONGSTER & SONS, Malton.

There was a class for 12 bunches, and this was of great extent. Mr. W. HUTCHINSON, Kirbymoorside, beat his numerous competitors, taking the 1st prize with a grand collection, marked by great refinement of colours in the blossoms. 2nd, Mr. W. FURNESS, South Milford.

FRUIT AND VEGETABLES.

The class for a decorated table of ripe fruit, not exceeding 14 nor fewer than 10 dishes, was the most important of the fruit classes. The decorations were a strong feature to be considered by the judges. There were four decorated tables, and these, with their complement of fine fruit, made an imposing display. The Earl of HARRINGTON, Elvaston Castle, Derby (gr. Mr. Goodacre), won the 1st prize, obtaining 114½ points out of a possible 136; the Duke of PORTLAND, Welbeck (gr. Mr. Jas. Gibson), followed, with 110 points; the 3rd prize going to the Marquis of NORTHAMPTON, Castle Ashby (gr. Mr. A. R. Searle), with 97½ points.

The premier exhibit was strong in Nectarines, Peaches, Cherries, Figs, and Melons. Grapes were weak, being only awarded 17½ points out of 32. The decorations secured 27 out of a possible 30 points, and consisted mainly of showy Orchids. The Duke of PORTLAND showed better Grapes, and he had fine Peaches, Melons, and Nectarines, and one splendid dish of Cherries, which secured the maximum number of marks. The floral decorations employed by Mr. Gibson were mainly of pink Carnations and Odontoglossums. The Nectarines in the 3rd prize group were choice fruits.

In the class for a collection of 10 kinds of fruits, there were four entries, the Earl of HARRINGTON again winning the 1st prize, followed by the Duke of NEWCASTLE, Clumber.

Workshop (gr. Mr. S. Barker); 3rd, Baron DE FOREST, Market Weighton (gr. Mr. J. C. McPherson).

For a collection of six kinds, the 1st prize was awarded to JOHN BRENNAND, Esq., Baldersby Park, Thirsk (gr. Mr. J. E. Hathaway). Early Rivers Nectarines and Peregrine Peaches were splendid, and there were good Grapes. 2nd, Lord SAVILE, Rufford Abbey, Ollerton (gr. Mr. J. Doe). Grapes in this exhibit were a feature, also a dish of Early Silver Peaches. 3rd, Earl of HARRINGTON.

There was good competition in the class for four kinds of fruits, the best exhibit being shown by Mrs. A. WILSON, Tranby Croft, Hull—some good produce, ineffectively staged. 2nd, Mr. JOHN BRENNAND; 3rd, Earl of HARRINGTON.

The best Black Hambro' Grapes were shown by Lady HAWKE, Wighill Park, Tadcaster (gr. Mr. H. T. Bray). The best white Grapes were Buckland Sweetwater, of magnificent finish, shown by W. D. CLIFF, Esq., Meanwood Towers, Leeds (gr. W. N. Hague).

Peaches were shown finest by Mr. BRENNAND, Thirsk, the variety being Royal George; 2nd, Lord BELPER, Kingston Hall, Derby (gr. Mr. W. H. Cooke), with Hale's Early.

The Earl of DERBY, Prescot (gr. Mr. E. F. Hazelton), excelled in the class for Nectarines, with Lord Napier; 2nd, Lord BELPER, with Early Rivers.

Melons were numerous. The best scarlet-fleshed variety was Sutton's Scarlet, exhibited by A. L. LAWSON, Esq., Aldborough Manor, Boroughbridge (gr. Mr. A. Nicholson). This exhibitor had also the best green-fleshed variety in Emerald Green. Lord BELPER had the finest white-fleshed variety in Eminence.

The Marquis of NORTHAMPTON had the finest Figs; Messrs. THOS. RIVERS & SONS the best Cherries; and FRANCIS SAMUELSON, Esq., Thirsk (gr. Mr. G. F. Brotherston), the best Strawberries.

VEGETABLES.—The Duke of PORTLAND, Welbeck (gr. Mr. Jas. Gibson), won the 1st prize for six kinds (the prizes being offered by Messrs. Sutton & Sons), with a superb collection. Potato Ideal, Tomato Princess of Wales, Pea Early Giant, and Cauliflower Magnum Bonum were all of grand quality. 2nd, Marquis of NORTHAMPTON (gr. Mr. A. R. Searle), who won the 1st prize in Messrs. Webb & Sons' class, with fine produce; 2nd, W. D. CLIFF, Esq., having large Walcheren Cauliflowers.

FIRST-CLASS CERTIFICATES.

Tomato Scarlet Drop.—A dessert variety, the long, narrow, red fruits being about the size of a Plum. Shown by Mr. G. T. WATSON.

Iris Duchess Sarah.—A refined variety, of the Germanica type, the colour clear blue, with a gold crest. Shown by Mr. G. YELD.

Sweet Pea Orange Paradise.—A variety with orange-coloured flowers; one of the best in its class. Shown by Miss HEMUS.

Carnation Lady C. Waring.—A Fancy variety of the perpetual-blooming type; colour pale buff, striped with rose-pink. Shown by Messrs. W. CUTBUSH & SON.

NON-COMPETITIVE EXHIBITS.

Messrs. ED. WEBB & SON, Wordsley, Stourbridge, arranged a table exhibit of fruits and flowers of imposing appearance, having Gloxinias, Sweet Peas, Aquilegias, and Liliums, with a back row of Hydrangea hortensis, and a centrepiece of pink Spiraeas, facing fine vegetables.

Messrs. WM. CUTBUSH & SON, Highgate, London, put up a beautiful group of flowers, principally Carnations and Roses. Their dwarf Polyantha Roses were charming, and the Carnations included most of the best varieties, all shown well. At the corners were imposing plants of Dracæna Victoria, set in clumps of the red-leaved Coleus Cordelia.

Messrs. E. J. BATCHELOR & SONS, Harrogate, staged a group of Ferns, having large specimens of the plumose varieties of Nephrolepis exaltata, and others of Platycerium alcicorne.

Messrs. SEAGRAVE & Co., Sheffield, showed Zonal and Ivy-leaved Pelargoniums, and Hydrangeas; also a very large assortment of Pansies and Violas.

Messrs. GILBERT & SON, Dyke, Bourne, Lincolnshire, showed Anemone King of Scarlets, and a few other double-flowered varieties.

Messrs. W. H. ROGERS & SON, LTD., Red Lodge Nursery, Southampton, displayed their hybrid Pelargonium James T. Hamilton.

Messrs. WALSHAW & SON, Scarborough, staged a new Pelargonium named Jacqueri, with large trusses of crimson flowers, and a yellow Calceolaria labelled Northern Triumph.

Messrs. JAMES BACKHOUSE & Co., LTD., York, put up a splendid group of miscellaneous greenhouse plants, including Roses, Carnations, Hydrangea paniculata (very fine), Caladiums, Coleus, Lilioms, and other showy subjects. They had also, outside the tent, a large group of shrubs and hardy flowers.

Messrs. BEES, LTD., Liverpool, showed Primula Bulleyana, some new Delphiniums, and an assortment of garden flowers.

Messrs. JARMAN & SON, Chard, showed Zonal Pelargoniums, Carnations, Sweet Peas, and their beautiful Centaureas, in white, yellow, and mauve shades.

Messrs. R. H. BATH, LTD., Wisbech, staged hardy flowers, their Pæonies being magnificent. They also showed vases of choice Carnations, with a row of Sweet Peas and Iceland Poppies.

fruits. Their seedling Nectarine, No. 101, is a variety of much promise. The large, well-fruited Cherry trees were a feature of the group.

Messrs. JOHN FORBES, LTD., Hawick, had Phloxes, Pentstemons, Pyrethrums, and Pansies, with other hardy flowers.

Mr. C. ENGELMANN, Saffron Walden, Essex, had vases of his beautiful Clove Carnation Carola, with other sorts.

Messrs. E. W. KING & Co., Coggeshall, Essex, made a delightful exhibit with Sweet Peas.

A grand show of Sweet Peas was made by Miss HEMUS, Holdfast Hall, Upton-on-Severn, most of them being of her raising.

Messrs. GEO. BUNYARD & Co., Maidstone, had a large group of hardy flowers.

Messrs. YOUNG & Co., Hatherley, Cheltenham, showed an artistic stand of Carnations, amongst them being a seedling named Golden Glory. White Perfection was extra good.

Mr. E. J. HICKS, Twyford, Berkshire, showed garden Roses.

Mr. CHAS. W. BREADMORE, Winchester, had a collection of Sweet Peas, well arranged and in great assortment.

group of Rhododendrons, pillar Roses, species of Vitis, golden Oaks, Aralias, and Ivies.

Mr. G. YELD, York, exhibited hybrid Ivies and Hemerocallis.

Messrs. ROBT. SYDENHAM, LTD., Birmingham, displayed Sweet Peas in rustic flower holders. Mr. ARTHUR EDWARDS, Nottingham, also showed flowers in metal holders.

Messrs. W. & J. BROWN, Peterborough, put up a group of miscellaneous flowering plants.

AWARDS.

Premier Prize.—Thos. Rivers & Son, Sawbridgeworth, for fruit trees in pots.

Gold Medals.—Mansell & Hatcher, Ltd., Leeds; Wm. Cutbush & Son, Highgate; J. Backhouse & Son, Ltd., York; Thos. Rivers & Sons, Sawbridgeworth; Sutton & Sons, Reading; E. Webb & Sons, Wordsley, Stourbridge.

Silver-gilt Medal.—Clibrans, Altrincham.

Silver Medals.—Messrs. Wm. Artindale & Sons, Sheffield; C. W. Breadmore, Winchester; J. Backhouse & Son, York; Batchelor & Sons, Harrogate; R. H. Bath, Ltd., Wisbech; G. Bunyard & Co., Ltd., Maidstone; Bakers, Ltd., Wolverhampton; Clibrans, Altrincham; Charlesworth & Co., Haywards Heath; Dicksons, Ltd., Chester; C. Engelmann, Saffron Walden; John Forbes, Ltd., Hawick; E. W. King & Co., Coggeshall; Kelway & Son, Langport; F. Sander & Sons, St. Albans; Seagrave & Co., Sheffield; C. F. Waters, Balcombe, Sussex.

R.H.S. Silver-gilt Flora Medal.—Miss Hemus, Holdfast Hall, Upton-on-Severn.

R.H.S. Silver Banksian Medal.—G. Yeld, Clifton Cottage, York.

Awards of Merit.—W. & J. Brown; Stamford; H. N. Ellison, West Bromwich; Gilbert & Sons, Bourne, Lincs.; Hodgkins & Co., West Didsbury, Manchester; E. J. Hicks, Twyford, Berks.; Young & Co., Hatherleigh, Cheltenham.

First-class Certificate.—Laxton Bros., Bedford.



FIG. 187.—CARNATION EMPIRE DAY: COLOUR ROSE-SALMON.

Messrs. DICKSONS, Chester, had a fine display of hardy flowers and a golden-leaved Ribes.

Messrs. W. & J. BROWN, Peterborough, showed Roses and garden flowers, making a bright exhibit.

Messrs. W. ARTINDALE & SON, Sheffield, showed a very large exhibit of Pansies and Violas, the front having arches decorated with pillar Roses.

Messrs. KELWAY & SON, Langport, Somerset, showed a bold group of hardy flowers, such as Pæonies, Delphiniums (very fine), Lupins, and Pyrethrums.

Messrs. SUTTON & SONS, Reading, had a delightful group of flowers, fruits, and vegetables. Gloxinias, Calceolarias, Sweet Peas, Melons, Peas, Tomatos, and other subjects were daintily arranged.

Messrs. THOS. RIVERS & SON, Sawbridgeworth, Herts., showed a magnificent group of pot fruit trees. They had Nectarines, Peaches, Grapes, Apples, Oranges, and Cherries, all superbly fruited, with a number of baskets of gathered

Messrs. LAXTON BROS., Bedford, showed varieties of Strawberries.

Mr. C. F. WATERS, Balcombe, Sussex, showed Carnations grandly, the beautiful variety named Edith Waters being particularly good.

Messrs. BAKERS, Wolverhampton, showed their fine strain of Aquilegias; also a brilliant display of Oriental Poppies and Pyrethrums.

Messrs. SANDER & SONS, St. Albans, showed Orchids, principally Lælio-Cattleyas, Odontoglossums, and Dendrobiums. We noticed a well-flowered plant of Stanhopea oculata grandiflora with seven fine blooms. Dendrobium regium was also good.

Messrs. MANSELL & HATCHER, Leeds, showed a large group of fine Orchids, amongst which we remarked Cattleya gigas, Brasso-Cattleya Digbyano Mossiae, Odontioda Bradshawiae, very fine spikes of Odontoglossum crispum and Miltonia vexillaria gigantea.

Mr. H. W. ELLISON, West Bromwich, showed Ferns in variety.

Messrs. CLIBRANS, Altrincham, staged a bold

PERPETUAL-FLOWERING CARNATION.

JUNE 9.—The Society's eighth exhibition, originally fixed for May 19, but postponed in consequence of the death of King Edward, took place on this date in the Royal Horticultural Society's Hall, Westminster. The show was an advance on the previous spring displays of the Society, the number of entries being one-third more numerous than last year. But, still, there was ample room for more exhibits, notwithstanding that several large groups of other subjects remained over from the R.H.S. exhibition held on the preceding Tuesday. The Carnations exhibited by nurserymen not in competition were remarkably good, contributing largely to the success of the show. The weather was beautifully fine, and the attendance was moderate.

Mr. Brunton, on behalf of the Society, presented the honorary secretary, Mr. Hayward Mathias, with a purse of gold and a piece of plate in recognition of his services to the Society since its inception.

The show arrangements were admirably carried out by Mr. E. F. Hawes, the show superintendent, and the secretary.

The class for a group of Carnations in not fewer than 12 varieties, arranged on a table measuring 10 feet by 3 feet, was one of the features of the show. There were six exhibits, the whole presenting an imposing display. The first prize was awarded to Mr. W. H. LANCASHIRE, Guernsey, who arranged big sheaves of large, finely coloured blooms, relieved with Asparagus Sprengeri and A. plumosus. The stalks were especially long and wiry, so that the blooms showed up well. Notable varieties were Mikado, Enchantress, Winsor, Black Chief, Mrs. H. Burnett, President Beacon, Rose Doré, and Afterglow. (Gold Medal.) The 2nd prize, the Society's Silver-gilt Medal, was won by Mr. C. F. WATERS, Balcombe, Sussex, whose blooms, having shorter stalks, presented a more solid appearance. Still, they were excellent blooms, especially Edith Waters (a fine, cerise variety), Georgie (white, with laced petals), Princess of Wales, Britannia, Enchantress, Glendale (a fancy having red stripings on a white ground), Victory, and White Enchantress. 3rd, Mr. A. F. DUTTON, Iver, Bucks.

A Challenge Cup was offered by the chairman, Mr. J. S. Brunton, for the best exhibit of three vases, each containing 12 blooms, of British novelties distributed by the trade since January 1, 1908. Mr. LANCASHIRE was the only exhibitor, and he was awarded the 1st prize for Black Chief, Rose Doré, and Empress, a good, white bloom, striped with dark red.

In the similar class for American novelties, the 1st prize included a Challenge Cup presented by the American Carnation Society. There was a better competition in this class. The prizes were awarded as follow:—1st, Mr. W. E. WALLACE, Eaton Bray, Dunstable, with May Day, Afterglow, and Pink Delight; 2nd, Mr. BERTIE BELL, Guernsey, with the same varieties; and 3rd, Mr. H. T. MASON, Hampton Hill, with May Day, Afterglow, and Mrs. J. Vaughan (white).

The next class was for two varieties of market Carnations, 60 blooms of each variety, to be shown in two boxes and two vases, the boxes to be packed as for market. The 1st prize consisted of the Covent Garden Bowl and a Silver-gilt Medal. There were five excellent exhibits, Mr. LANCASHIRE being successful in carrying off the trophy with sterling blooms of Marmion and White Perfection. 2nd, Mr. C. ENGELMANN, Saffron Walden, with White Perfection and Carola.

SPECIAL VARIETIES AND COLOUR CLASSES.

Certain varieties of special colours were required in collections of 25 blooms, in classes open

were five exhibits, all of Winsor. 1st, Mr. BELL; 2nd, Mr. LANGE; 3rd, Mr. WALLACE.

Six blooms, ditto.—Three exhibitors showed Rose-Pink Enchantress. 1st, Lord HOWARD DE WALDEN; 2nd, Sir RANDOLPH BAKER; 3rd, E. J. JOHNSTONE, Esq.

Mrs. T. W. Lawson, Afterglow, Alvina, Aristocrat and similar colours.—There were six entries, principally of Afterglow, which was placed 1st and 3rd, Autocrat being 2nd. The exhibitors were Messrs. WALLACE, BELL and LANCASHIRE respectively.

Six blooms ditto.—The 1st prize went to a vase of Afterglow, shown by Mr. JOHNSTONE; and 2nd to Superior, shown by Lord HOWARD DE WALDEN.

White.—In the class for 25 blooms, there were two exhibits of White Perfection, shown by Mr. WALLACE and Mr. LANGE, who were placed 1st and 2nd respectively.

In the amateur class four exhibitors also showed White Perfection, the best by Lord HOWARD DE WALDEN; 2nd Sir R. BAKER, Bart.

Scarlet.—There was good competition in the open class, there being six vases of Britannia and one of Beacon. The latter, shown by Mr. H. T. MASON, was adjudged the finest.

In the amateurs' division for six blooms, Britannia, shown by C. F. RAPHAEL, Esq., was the best; 2nd, Victory, shown by Lord HOWARD DE WALDEN.

Crimson or Clove.—The fine flowers of Carola shown by Mr. ENGELMANN were the best amongst five exhibits, President being placed 2nd and 3rd.

In the amateurs' class, Crimson Glow, shown by Lord HOWARD DE WALDEN, was awarded the 1st prize in competition with three others.

Any other Self.—Open: 1st, Rose Doré, shown by Mr. LANCASHIRE; 2nd, Mikado, shown by Mr. BELL.

Amateurs.—1st, Mikado, shown by Sir RANDOLPH BAKER, Bart.; 2nd, Red Lawson, shown by Lord HOWARD DE WALDEN.

Any fancy variety.—Open: 1st, Mr. W. E. WALLACE, with Bay State, a fine bloom having rose markings on a white ground.

Amateurs.—The 1st and 2nd prizes went in favour of Jessica, shown by Sir RANDOLPH BAKER, Bart. and Lord HOWARD DE WALDEN respectively.

The new Empire Day (see fig. 187) was awarded the special prize presented by Mr. Fred. Blake for the best 12 blooms of any variety not in commerce.

The Silver-gilt Medal offered for the best vase of Carnations in classes 5 to 16 inclusive was also given for this novelty.

In the amateurs' classes, an important one was for a group of perpetual-flowering Carnations arranged in a semi-circle having a space of 25 square feet. The 1st prize was Lord Howard de Walden's challenge vase with 30s. in money. There were three exhibits, C. F. RAPHAEL, Esq. (gr. Mr. A. Grubb), the winner on former occasions, being again successful. He showed a good, bright group of compact plants, the outer ones being the scarlet Britannia, with Marmion, White Perfection, Rose, Enchantress, Winona, and other well-known kinds in the centre. The 2nd prize group, shown by E. J. JOHNSTONE, Esq. (gr. Mr. Paskett), was composed of taller plants.

Mr. JOHNSTONE was the only exhibitor of a collection of Carnation blooms in the amateurs' section, being awarded the 1st prize.

In the decorative classes there were many pretty exhibits, including six tables arranged with Carnations, the winning one being arranged with Winsor and trails of Selaginella. There were numerous other classes in the amateurs' section, the exhibitors being mainly those already mentioned.

AWARDS.

The Society's First-class Certificate was awarded to May Day, and Awards of Merit to Pink Delight and Superior, these being the best of recent American-raised varieties.

NON-COMPETITIVE EXHIBITS.

Gold Medals to Mr. G. LANGE, Hampton; Mr. H. BURNETT, Guernsey; Mr. C. E. ENGELMANN, Saffron Walden; and E. J. JOHNSTONE, Esq., Groombridge.

Silver-gilt Medal to Messrs. STUART LOW & Co., Enfield.

Silver Medals to Messrs. W. CUTBUSH & Son, Highgate; and Mr. J. GREEN, Wisbech.

Obituary.

WILLIAM JAMES NUTTING.—It is with regret we announce the death on the 12th inst. of Mr. W. J. Nutting, at Bromley, Kent, in his 83rd year. Mr. Nutting was the senior member of the firm of Messrs. Nutting & Sons, Ltd., wholesale seedsmen, Southwark Street, London, S.E. The firm was founded in 1882 by the father of the deceased, who formed it into a private company in 1909. Mr. Nutting was well known in the provinces, having travelled for his firm for a considerable number of years. Mr. Nutting was formerly a member of the Fruit and Vegetable Committee of the Royal Horticultural Society. Until eight years ago he was also a member of the committee of the Gardeners' Royal Benevolent Institution. He was always a liberal supporter of benevolent institutions, especially of those connected with horticulture, and he possessed a most kindly disposition, that endeared him to all who had the privilege of his acquaintance. On retiring from the committee of the Gardeners' Royal Benevolent Institution, his place on this body was filled by the election of his nephew, Mr. H. W. W. Nutting. The principal members of the firm now include Mr.



THE LATE WILLIAM JAMES NUTTING.

Whitpaine Nutting, at present a member of the Executive Committee of the Royal Gardeners' Orphan Fund, and two nephews of the deceased.

HENRY CANNELL, JUNR.—Much sympathy will be felt with Mr. Henry Cannell, the well-known florist and nurseryman, of Swanley, Kent, in the sorrow that has overtaken him in the untimely death of his eldest son, Henry. It appears that deceased was kicked recently on the arm by a pony he had been in the habit of driving from Swanley to the Cockmanning Nurseries at St. Mary Cray. The wound healed quickly, but later a clot of blood that was hidden in the fleshy part of the arm set up blood poisoning, and death resulted on Sunday last. It will be remembered that Mr. Cannell's youngest son, Ernest, died in 1907, therefore Mr. Robert Cannell, of Eynesford, is the only son now surviving. Mr. Henry Cannell, jun., had sole charge of the clerical work connected with the business, and this included the drawing up of catalogues, descriptions of new plants, and general office work. He was of a most retiring nature, and, mainly for this reason, he was not in the habit of attending the horticultural shows, but those who knew him best respected him for his kind, unassuming manner and his business integrity and straightforwardness. Deceased's wife died seven years ago, leaving one son and one daughter.



THE LATE HENRY CANNELL, JR.

to all, similar classes with six blooms being provided for amateurs. These were as follow:—

Twenty-five blooms of either Enchantress, Melody, Fair Maid, Mrs. Chas. Knopf, and similar colours.—This brought the finest novelty in the show in Empire Day (see fig. 187), much richer in colour, and, as staged, superior to Enchantress, of which four, of the five, exhibits consisted. The exhibitor was Mr. A. SMITH, Enfield Highway, and he was awarded the premier position. 2nd, Mr. G. LANGE, Hampton; and 3rd, Mr. BELL, Guernsey.

Six blooms, ditto.—1st, 2nd, and 3rd, Enchantress, showed by Lord HOWARD DE WALDEN, Saffron Walde. (gr. Mr. James Vert); Sir R. BAKER, Bart., Blandford (gr. Mr. Usher); and C. F. RAPHAEL, Esq., Shenley (gr. Mr. A. Grubb).

Twenty-five blooms of either Mrs. H. Burnett, Pink Delight, May Day, and others of similar colour.—1st Mrs. H. Burnett, shown by Mr. LANCASHIRE; 2nd and 3rd, Winsor, shown by Mr. WALLACE and Mr. BELL respectively.

Six blooms, ditto.—There were six exhibits, apparently all of Mrs. H. Burnett, shown by STUART ROBINSON, Esq., Kingston; E. J. JOHNSTONE, Groombridge; and Sir R. BAKER, Bart., who won in the order of their names.

Twenty-five blooms of Rose Pink, Enchantress, Winsor, Winona, and similar colours.—There

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 11, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was generally very fair to fine and bright in Scotland. A predominance of fair weather was experienced also in the north-east and east of England, but elsewhere the conditions, although occasionally fine and bright, were mostly dull and close. Thunderstorms of considerable severity, and accompanied in many places by heavy falls of rain and hail, occurred in some parts of England every day, but were rarely experienced in Ireland.

The temperature was above the average, the excess amounting to between 4° and 6° over the greater part of England and also in Scotland W. The highest of the maxima were registered either on the 9th or 9th at the majority of stations, and ranged from 80° in England N.E., and 79° in Scotland E. and England E. and N.W. to 72° in Ireland S. The lowest of the minima, which were registered on the 5th or 6th, varied from 33° in Scotland E. and 34° in Scotland N. to 49° in England E. and to 50° in England S.E. and the English Channel. During the latter half of the week the minima over the south-east and south of England were very high. The lowest grass readings reported were 31° at Balmoral, 32° at Crathes, 35° at West Linton, 37° at Newton Rigg and Glasgow, and 39° at Marchmont and Sheffield.

The rainfall varied greatly in different localities. In Scotland and the north-east and east of England it was below the average, but elsewhere it was in excess, the difference from the normal being large in most parts of England. Falls of an inch or more were very common on Sunday and Thursday over a large portion of England and Wales, and similarly large amounts occurred on some other days. The heaviest falls reported Sunday were 2.6 inches at Cardiff, 1.85 inch at Bristol, and about 1.5 inch at Clifton and Llangammarch Wells; on Monday 1.66 inch fell at Aberystwyth, while at Salisbury nearly the whole of a measurement of 5.63 inches fell between 1 and 4 a.m. On Thursday about 1.65 inch was recorded at Bath and Clifton, 1.3 inch at Jersey, and between 1 inch and 1.2 inch at many places in the southern half of England and Wales. More than an inch also fell at Bristol and at some Welsh stations on Friday.

The bright sunshine exceeded the normal in Scotland, but was deficient in England and Ireland. The percentage of the possible duration ranged from 56 to 49 in the Scottish districts and from 89 in England N.W. to 21 in the Midland Counties, 15 in the English Channel, and 13 in England S.W.

THE WEATHER IN WEST HERTS.

Week ending June 15.

A "record" rainfall.—The warm and cold days were about equally divided, but on only two nights, and those at the end of the week, was the temperature below the average. On the coldest night, however, the exposed thermometer fell to within 4° of the freezing point. These cold nights have caused the temperature of the ground to fall, so that at the present time it is only about 1° warmer than is seasonable, both at 1 and 2 feet deep. Rain fell on three days, to the total depth of 2½ inches, which is about the average fall for the whole month. The first rainfall of the week occurred during a thunderstorm on the 9th, and proved a very remarkable one. The aggregate measurement was 1½ inches, which is equivalent to 7½ gallons on each square yard of surface—1½ inches of that amount was deposited between 3.40 and 4.15 p.m.—during which time the rain was falling at the rate of 2½ inches an hour. This is the heaviest rainfall I have recorded here for 35 minutes in the last 25 years. In order to show the very exceptional character of this fall of rain in 35 minutes I may state that it is seldom as large a quantity is registered at any time of the year, even in a day. In fact, in those 25 years there were 11 years without the total rainfall of any day being as heavy, and in the remaining 14 years there was only one year in which the total rainfall was on more than one day as heavy. At 3.45 p.m. the storm was almost immediately overhead. On the following day nearly three-quarters of an inch of rain fell, of which quantity half-an-inch, equivalent to 2½ gallons on each square yard of surface, was deposited in little over an hour. The percolation gauge on which short grass is growing had been quite dry for six days until the storm above mentioned, but in the next 48 hours 6½ gallons had passed through it, and in the same time seven gallons entered the bare-soil gauge. The sun shone on an average for five hours a day, which is more than an hour a day short of the average for the month. Calms and light airs have alone prevailed during the week. The mean amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by as much as 10 per cent. E. M., "Rosebank," Berkhamsted, June 15, 1910.

SCHEDULES RECEIVED.

County Borough of Hanley's Fourteenth Annual Show, to be held on July 6, 7. Secretary, Mr. Wm. Poulson, Town Hall, Hanley.

Women's Agricultural and Horticultural International Union's show of farm and garden produce, live poultry, and objects of art, to be held at the Royal Botanic Gardens, Regent's Park, on Thursday, July 7. Show secretary, Mrs. Marjette, 64, Lower Sloane Street, S.W.

Potters Bar and Northway Cottage Horticultural Society's Forty-first Summer Exhibition, to be held in conjunction with the seventh show of the Potters Bar and District Amateur Rose Society, on Thursday, July 14, at Little Heath Wood, Potters Bar. Hon. Secretary, Mr. H. R. Darlington, Park House, Potters Bar.

Addlestone Rose and Sweet Pea Show, which is fixed for Wednesday, July 6, promises to be exceptionally attractive this year. In a class for Roses, confined to Trade Exhibitors, the award is a challenge cup, at present held by Messrs. B. R. Cant & Son.

MARKETS.

COVENT GARDEN, June 15.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eps.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemones, p. doz.	1 0-1 6	Marguerites, p. doz.	
Azalea, Ghent, per bunch	0 6-0 9	and yellow	3 0-5 0
—Fiedleri, per dozen bunches	2 0-3 0	Mignonette, per dozen bunches	3 0-4 0
Bouvardia ...	4 0-6 0	Narcissus poeticus (Pheasant's Eye), per doz. bunches	1 0-2 0
Calla (see Richardia)		Odon to glossum crispum, per dozen bunches	1 0-2 0
Carnations, p. doz. blooms, best	2 0-3 0	Pelargonium, show, per doz. bunches	4 0-6 0
American (var.)	2 0-3 0	—Zonal, double scarlet	3 0-5 0
Carola, and other special varieties	4 0-5 0	Poppies, Iceland, per doz. bunches	8 0-10 0
—second size	1 6-2 0	Richardia africana (Calla), p. doz.	1 6-2 0
—smaller, per doz. bunches	12 0-18 0	Roses, 12 blooms, Niphetos	1 0-2 0
Cattleyas, per doz. blooms	6 0-9 0	—Bridesmaid	1 6-2 6
Daffodils, best, per doz. bunches	1 6-3 6	—C. Testout	1 6-2 6
—seconds	1 0-2 0	—Kaiserin A. Victoria	1 0-3 0
—double, per doz. bunches	1 0-1 6	—Capt. Hayward	1 6-2 6
Eucharis grandiflora, per dozen blooms	4 0-5 0	—C. Mermet	1 6-2 6
Freesias, per dozen bunches	1 0-1 6	—Liberty	1 6-2 6
Gardenias, per doz.	1 0-2 0	—Mine Chateaux	1 0-2 6
Gladiolus, Colvillei varieties, per dozen bunches	6 0-9 0	—Richmond	2 0-4 0
Gypsophila elegans, p. doz. bunches	2 0-3 0	—The Bride	1 0-2 0
Heather (white), per bunch	1 0 —	Spiraea, per doz. bunches	4 0-6 0
Iris (Spanish), per doz. bunches	6 0-8 0	Stephanotis, 72 "pips"	3 0-4 0
Lilac, per bunch	1 0-2 0	Stocks, per doz. bunches	3 0-4 0
Lilium auratum, per bunch	2 0-3 0	Sweet Peas, per dozen bunches	2 0-5 0
—candidum	2 0-3 0	Tuberose, p. gross	4 0-6 0
—longiflorum	2 0-3 0	—per doz. blooms	0 4-0 6
—lancifolium rubrum	1 6-2 0	Tulips, singles, per doz. bunches	4 0-8 0
—lancifolium album	1 6-2 0	—doubles, per doz. bunches	10 0-15 0
Lily of the Valley, p. doz. bunches	5 0-6 0	Violets, per doz. bunches	2 0-2 6
—extra quality	9 0-12 0	—Parma, per doz. bunches	1 6-2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches	4 0-6 0	Ferns (French)	0 6-0 9
Asparagus plumosus, long trails, per doz. bunches	12 0-18 0	Galax leaves, per doz. bunches	1 6-2 0
—medium, doz. bunches	12 0-18 0	Hardy foliage (various), per dozen bunches	3 0-9 0
—Sprengeri	9 0-12 0	Ivy-leaves, bronze	2 0-2 6
Berberis, per dozen bunches	2 6-3 0	—long trails per bundle	1 0-1 6
Croton leaves, per dozen bunches	9 0-12 0	—short green, per doz. bunches	1 0-2 0
Cycas leaves, each	1 0-2 0	Moss, per gross	3 0-4 0
Ferns, per dozen bunches (English)	2 0-3 6	Myrtle, dz. bchs. (English)	4 0-6 0
		—small-leaved	1 0-1 6
		—French	0 4-0 6
		Smilax, p. dz. trails	1 0-1 6

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Ampelopsis Veitchii, per dozen	6 0-8 0	Crassulas, per doz.	8 0-12 0
Aralia Sieboldi, p. dozen	5 0-8 0	Crotons, per dozen	18 0-30 0
—larger specimens	9 0-12 0	Cyclamen, per doz.	8 0-12 0
—Mosetti	6 0-8 0	Cyperus alternifolius, per doz.	4 0-5 0
—larger plants	12 0-18 0	—laxus, per doz.	4 0-5 0
Araucaria excelsa, per dozen	12 0-30 0	Dracenas, per doz.	9 0-24 0
—large plants, each	3 6-5 0	Erica candidissima, per dozen	18 0-24 0
Aspidistras, p. dz.	15 0-24 0	—Cavendishii, per dozen	24 0-36 0
—variegated	30 0-42 0	—persoluta alba	24 0-30 0
Asparagus plumosus, per dozen	9 0-12 0	—small plants	3 0-5 0
—Sprengeri	9 0-12 0	—variegata	24 0-36 0
—tenuissimus	9 0-12 0	Euonymus, per dz.	3 0-8 0
Boronia heterophylla, per dz.	24 0-30 0	—from the ground	3 0-6 0
—megastigma	18 0-24 0	Ferns, in thumbs, per 100	8 0-12 0
Calceolarias (herbaceous), per dozen	6 0-8 0	—in small and large 60's	12 0-20 0
—yellow, per dz.	5 0-6 0	—in 48's, per dz.	4 0-6 0
Cineraria, per dozen	5 0-8 0	—chooser sorts	8 0-12 0
Clematis, per doz.	8 0-9 0	—in 32's, per dz.	16 0-18 0
—in flower	18 0-24 0	Ficus elastica, per dozen	9 0-12 0
Cocos Weddelliana, per dozen	18 0-30 0	—repens, per dz.	6 0-8 0
Coleus, per doz.	3 0-5 0	Fuchsias, per dz.	6 0-9 0
		—standards, each	2 0-4 0
		Grevilleas, per dz.	4 0-6 0
		Heliotrope, per dz.	5 0-6 0
		Hyacinths, per dz.	6 0-9 0
		—pot, 3 in a pot	6 0-9 0

Plants in Pots, &c.: Average Wholesale Prices (Contd.).

	s.d. s.d.		s.d. s.d.
Hydrangeas hortensis, per doz.	9 0-18 0	Marguerites, white, per dozen	5 0-8 0
—Thors. Hoag	12 0-24 0	Pelargoniums (show), per doz.	8 0-18 0
Isolepis, per dozen	4 0-6 0	—Ivy leaved, per dozen	6 0-8 0
Kentia Belmoreana, per dozen	18 0-24 0	—Zonal	5 0-6 0
—Fosteriana, per dozen	18 0-30 0	Petunias, per doz.	6 0-8 0
Latania borbonica, per dozen	15 0-21 0	—in 60's	2 0-3 0
Lilium longiflorum, per dz.	24 0-36 0	Selaginella, p. doz.	4 0-6 0
—lancifolium, per dozen	18 0-30 0	Spiraea japonica, per dozen	8 0-10 0
—martagon p. dz.	18 0-21 0	Stocks (Intermediate), per dz.	5 0-8 0
Lily of the Valley, per dozen	12 0-18 0	Tulips, in pots, special	6 0-9 0
Mignonette, p. doz.	4 0-6 0	Verbena, per doz.	5 0-9 0

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples (Australian), per case	9 6-11 0	Lemons (Naples), 420	22 0-25 0
—Monro's Favourite	9 6-11 0	—(Messina), 150	8 6-10 6
—(Tasmanian), per case	9 6-11 0	Melons (English), in 60's	1 6-2 6
—Ribston	9 0-10 0	—(Guernsey)	1 6-3 0
—New York	9 0-12 0	—(French), Cantaloupes, each...	4 0-9 0
—Scarlet PEARMAIN	9 6-11 6	—selected, dozen	12 0-18 0
—Crews Egg	9 0-10 0	—seconds	4 0-8 0
—Wellington	11 0-12 0	Nuts, Almonds, p. bag	36 0-42 0
—Sturmer Pippin	9 6-10 6	—Brazil, new, per cwt.	45 0 —
—French Crab	9 0-11 0	—sorted	50 0 —
Apricots (French), per box	1 0-1 3	—Barcelona, per bag	82 0-34 0
—per case	2 0-3 6	—Cocoa nuts, 100	10 0-14 0
Bananas, bunch:		Oranges—	
—Doubles	8 0-10 0	—Californian	
—No. 1	8 0-10 0	Navel, box (36)	14 6-16 0
—Extra	10 0-14 0	—" case (36)	14 6-16 0
—Giant	14 0-16 0	—" (112)	14 6-16 0
—Red coloured	4 0-6 6	—" (126)	14 6-16 0
—Red Doubles	8 0-9 0	—Denia, per case (420)	18 0-20 0
—Loose, per dz.	0 6-1 0	—(714) selected	24 0 —
Cherries (French), per box	1 6-1 9	—Murcia (200)	12 6-17 0
—bushel	8 0-9 6	—(300)	10 6-16 6
Custard Apples, p. dozen	6 0-12 0	Peaches (English), per doz.	8 0-14 0
Figs	2 0-8 0	—seconds	2 0-6 0
Grape Fruit, case:		Pears (Avacado), per doz.	6 0-12 0
—96's	20 0 —	—(Tasmanian):	
—10's	20 0 —	—Vic of Wakefield, large cases	13 0-14 0
—64's	20 0 —	Pineapples, each	2 0-5 0
—54's	20 0 —	Strawberries, p. lb.	1 0-1 6
Grapes, per lb.:		—cold house	0 6-1 0
—Black English, (new)	1 0-3 6	—seconds	0 6-1 0
Grapes (Australian), per 20 lbs.	18 0 —	—(Southampton's), per basket	2 6-3 6
—Black	20 0 —	—(French), per crate of 4 baskets	6 0-11 0
Lemons, per case:			
—(Messina), selected, 300	14 0-16 0		
—selected, large	16 0-20 0		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	3 0 —	Lettuce (French), Cos, per dozen	2 6-5 0
—Jerusalem, sieve	0 9-1 0	Marrows, per doz.	4 0-8 0
Asparagus, English, per bundle	2 0-2 6	Mint, doz. bunches	3 0-6 0
—100 sticks	7 6-20 0	Mushrooms, per lb.	0 8-1 0
—Giant	1 9-2 0	—broilers	0 4-0 6
—Montauban	1 9-2 0	Mustard and Cress, per dozen pun.	0 6-0 8
—Toulouse	1 6-2 0	Onions (spring), dz. bunches	1 6 —
Beans (English and Chan. Islands), per lb.	0 9-1 0	—Egyptian, bags	7 0 —
—Broad (French), per pad	2 6-3 6	Parsley, sieve	1 6-2 0
Beetroot, per bushel	2 0-2 6	Peas (French), pad	4 6-5 0
Cabbages (spring), per hamper	2 6-3 6	—(Jersey) per lb.	1 3-1 6
Carrots (English), dozen bunches	4 0-5 0	—(Jersey) English	4 0-6 0
—(French), per dozen bunches	5 0-6 0	Potatoes (Algerian), cwt.	14 0 —
Cauliflowers, hamper (24-30)	4 0-6 0	—(Channel Islands), per lb.	0 12 0-2
—per doz. bunches	3 0-4 0	—(Teneriffe), per cwt.	6 0-9 0
—Dutch, p. crate	3 6 —	—(Lisbon), case	4 0-4 6
Cucumbers, p. flat	6 0 —	Rhubarb, Natural, per dz. bundles	2 0-3 0
—30's	6 0 —	Radishes (English), per dozen	0 8-10 0
—36's	6 0 —	Spinach, sieve	1 6-2 0
—42's	5 0 —	Stachys tuberosa, per lb.	0 4-0 5
Endive, per dozen	2 6-3 0	Tomatoes—	
Greens, Spring, bag	1 0-1 6	—(English), per dozen lbs.	5 6-5 6
—Herbs (sweet), packets, per gross	7 0 —	—small selected	4 6-5 0
Gooseberries, ½ bus.	3 0-4 0	—seconds	2 0-2 6
Horseradish, foreign, new, per bundle	1 0-1 6	—(Guernsey), per dozen lbs.	6 0 —
—12 bundles	12 0-18 0	—(Teneriffe), per bundle	8 6-10 0
Leeks, 12 bundles	1 0-1 6	Turnips, 12 bunches	2 0-3 0
Lettuce (English), per bushel	0 9-1 6	—(French), per dozen bunches	6 0-8 0
—hamper	1 6-2 6	Watercress, p. dz. bunches	6 0-6 6
—Cos, per dozen	2 0-4 0		

REMARKS.—Hot-house strawberries have now practically finished, but there is a good supply from the cooler houses and outdoor fruits from the Southampton district. Prices have, consequently, fallen much during the week. Home-grown Peaches are a good supply, but large Nectarines are scarce. English Grapes are selling well, also the supplies from Australia. Foreign Apples are not selling so freely.

Cherries from France are not so inferior as former samples, and they are selling better. Apricots are of fine quality and selling freely. English Tomatoes are plentiful and cheap. Foreign Tomatoes have nearly finished, but still a few samples are to be had on the market. Homestead Beans are firmer. The vegetable market is well supplied. Peas are to be had in quantities packed in bushels, of very good quality. Asparagus is plentiful. Trade generally is good. *E. H. Rules, Covent Garden, June 15, 1910.*

Potatoes.

	per cwt.		per cwt.
	s. d.		s. d.
Blacklands ...	2 0-2 9	Lincolns —	
Dunbars ...		Sharpe's Express...	2 3-2 6
Maincrop ...	5 6-5 9	Up-to-Date ...	3 0-3 9
Up-to-Date ...	4 0-4 6	Dalmeny Beauty...	3 6-3 9
Lincolns —		Royal Kidney ...	2 0-2 6
Evergood ...	2 3-2 6	Maincrop ...	2 9-3 6
		King Edwards ...	3 0-3 6

New Potatoes.

Teneriffe, per cwt.	7 0-8 6	Jersey, per cwt.	8 0-8 6
Lisbon, per case	3 6-4 0	Cherbourg, per cwt.	7 0-7 9
St Malo, per cwt.	8 0		

REMARKS.—The trade for old Potatoes still continues fair. The prices for new tubers are about the same as last week. *Edward J. Newborn, Covent Garden and St. Pancras, June 15, 1910.*

COVENT GARDEN FLOWER MARKET.

Ascot week is usually a bad week for general market trade. To-day it has been unusually slow, both for plants and cut blooms. Bedding plants are getting thinned out, and some of those now to be seen are of very indifferent quality. The supplies of most plants are excessive. Pansies, Violas, Wallflowers, Daisies, and other hardy flower roots appear on most of the stands. In flowering plants there are good show Pelargoniums procurable, but it is only the best that sell at anything like a fair price. Zonal varieties are good and well flowered. Herbaceous Calceolarias are good, and the shrubby, yellow varieties in 48's. *Erica persoluta* and *E. magnifica*, but they will not hold out much longer. Hydrangeas are plentiful and good. The blue-tinted *H. hortensis* are more plentiful this season. *H. paniculata*, in various sizes, are of the best quality; also *H. Thomas Hogg*—a favourite with florists, as it lasts so well. Roses include Ramblers, Dwarf Polyanthas, Hybrid Perpetuals, and the dwarf varieties of the "Little Pet" section. It is the large pyramids of Dorothy Perkins and other Ramblers that are most in demand. Mignonette is sent by several growers and the plants are very good specimens. Heliotropiums and Petunias, in various sizes; *Spiræa*, in white and pink, also Lilioms are well flowered. Ferns are remarkably good, and Palms are well supplied; yet, from what I hear, there may be a scarcity again later. Asparagus Sprengeri has become a popular pot plant, and *A. plumosus nanus* sells well. Genistas are well flowered, and, being used for window boxes, they sell fairly well.

CUT FLOWERS.

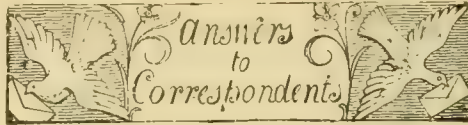
The trade has been very dull during the past week, and it seems likely that it will continue so for some weeks. White flowers are most in demand, but supplies are plentiful and prices are but moderate. Sweet Peas are abundant, also Pyrethrums in various colours and summer flowers generally. Carnations are over plentiful, and at the close of the market are offered at low prices. Good Roses sell fairly well. Pæonies are remarkably good in various colours. Liliom longiflorum is seen in large quantities, and prices are rather lower than they were a week ago. *L. lanciflorum rubrum* and *L. l. album* are good; there are also good samples of *L. candidum*. Lily of the Valley from the open ground is very fine this season. Tulips and Hyacinths are procurable, but the supplies are falling off and prices are uncertain. Daffodils will also be finished shortly. Pyrethrums are at their best, and being present in large quantities. Gladioli of various sorts are good. *G. Colvillei* is most in demand. During the next few weeks there will be but little demand except for white flowers. *A. H., Covent Garden, June 15, 1910.*

NEW INVENTION.

PRISMATIC ROOFING.

OUR attention has been drawn to a new system of roofing for glasshouses, the invention of Mr. J. H. Beamish, of New Zealand. Mr. Beamish calls it prismatic roofing, the glass being arranged in ridges or rows like Potato furrows. The advantages claimed by the inventor for his style of glazing are the speedy and effectual disposal of all water, either from rain or condensation, an increased amount of light in the house morning and evening, as fewer rays are deflected, and the diffusing of the rays at mid-day thus obviating all danger from burning or scorching by sun.

The panes of glass or other roofing material are supported and secured on a specially channelled rafter. The glass simply rests on channelling, is secured by metal clips, and can be readily fixed and replaced. If breakage occurs, the water from other panes, being conducted directly to the channel, by reason of the double fall, only such rain as falls actually on the broken area is admitted to the interior of the house; thus very little drip is possible. No putty or paint is used in the glazing.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction as Supplementary Illustrations in this Journal.

ASTRÆA WALLICHII: L. G. P. This plant may be flowered in a tolerably small state, if potted into a large pot, and allowed to get pot-bound. If the plant requires more support some turves of loam should be placed under the pot, and the plant allowed to root through into them. If the size of the plant exceeds the space you have for its accommodation, you could make a present of it to someone who has greater convenience, for the species is a really beautiful plant when in flower.

BOOKS: Anxious. You can obtain *Lawns*, by Sutton and Sons, price 1s. 2d., from our publishing department.

CARNATIONS: Anxious. The plants are injured at the collar by a mining maggot. Place soot round the stems, in order to prevent eggs being deposited.

CHERRY TREE: G. W. W. & Co. We could not find the insect, but it is probably the larva of the Cherry tree sawfly. To rid the trees of these, dust the "slug-worms," as the larvæ are termed, with quicklime or gaslime. They will throw off this, when first applied, by exuding a coating of slime; but they cannot continue doing this, if the operation is repeated several times. You may also syringe the trees with strong soap-suds or tobacco water, or with a wash containing 20 lbs. of soft soap and a peck of lime to each 30 gallons of water. During the winter following a bad attack, remove the surface soil to a depth of 3 or 4 inches. This will contain large numbers of cocoons, and should be burned, or buried deeply, with quicklime or gaslime. If the soil cannot be removed, vaporite may be inserted in it in autumn. Many perfect sawflys can be caught by shaking the trees over a freshly-tarred board or cloth in the evening.

CUCUMBERS: Moortown. The plants are attacked with the Cucumber and Melon spot fungus (*Cercospora melonis*). Spraying with Bordeaux mixture has not been found effective against this disease, unless it is commenced at a very early stage. In any case, all diseased leaves should be burnt as soon as the spot is detected, treating the whole plant in the same manner if the attack is severe. The use of carbolic acid for sprinkling the floor of the houses just before closing in the evening has been found to be valuable in some cases. The best preventive is to take proper care to ventilate the house sufficiently.

EMPLOYMENT AT KEW: Correspondent. If you write to the Director of the Royal Botanic Gardens, Kew, he will send you a memorandum of conditions of employment as gardener, together with a form of application. This form of application must be returned to the Director, accompanied by a letter in the applicant's own handwriting, with testimonials in English from employers or head gardeners. Applicants must be unmarried, between 19 and 24 years of age, and must have been employed not less than four years in good gardens or nurseries. They must be healthy, free from physical defect, and not below average height. Gardeners while at Kew receive an allowance of 21s. per week to meet the cost of subsistence. Those who are selected to serve as sub-foreman receive 27s. per week. Extra allowances are granted for Sunday duty, a certain amount of which is compulsory.

NAMES OF PLANTS: R. B. You omitted to give your address. 1, Rhododendron Ingramii; 2, R. The Queen; 3, R. Barclayanum; 4, R. Pelopidas; 5, R. Princess Mary of Cambridge; and 6, R. Michael Waterer. **P. B.** Trifolium minus. **A. J. H.** Probably *Alstroemeria haemanthæ*. We cannot say definitely, as the flowers are not yet formed. **J. B.** *Muscari comosum monstrosum*. **W. J. B.** 1, *Buddleia globosa*; 2, *Corydalis chelanthifolia*; 3, *Asperula odorata*. **W. J. W.** *Lonicera*

involucrata. **H. H.** *Muscari comosum monstrosum*. **G. H.** *Thalictrum aquilegifolium*. **B. H.** 1, *Satyrion coriifolium*; 2, *S. carneum*; 3, *Eulophia ensata*; 4, *E. pulchra*. **B.** *Eulophia Dregeana*. **G. D.** 1, *Iris graminea*; 2, *Veronica spicata*; 3, *Buddleia globosa*. **K.** *Mimulus (Diplacus) glutinosus aurantiacus*. **J. R. G.** *Crinum giganteum* and *Helix Solierii*. **A. R. P.** *Ixia erecta*. **R. Hudson.** The mottled leaf is *Pulmonaria saccharata*, the other *Dicentra eximia* (*Dielytra*). **Enquirer.** *Spiræa chamaedrifolia*.

NOVELTY: E. A. We cannot tell you whether in a particular case, the circumstances of which are unknown to us, it would be more profitable to sell a novelty to a seed merchant or to exhibit it yourself and to work up a stock for distribution. In many cases the convenience of the raiser is served by placing the novelty in the hands of a widely-known seedman or nurseryman, but in other and less numerous cases the raiser prefers to distribute the novelty himself. In a very few cases raisers have not only distributed the novelty, but they have established a business for the purpose, and the business has succeeded owing to the advertisement gained in the distribution. You must determine the question for yourself, taking into consideration the position you now fill, the means you have for effecting proper distribution, and particularly, the estimated value of the novelty itself.

ONIONS: G. L. Your Onion plants are affected with the fungus *Sclerotinia sclerotorum*. The prevalence of the Sclerotium disease is due to plants containing Sclerotia being left on the land. The placing of such diseased plants in the piggery or on the manure heaps does not destroy the Sclerotia, which are capable of passing through the digestive tract of an animal without injury. The following are some suggestions recommended by the Board of Agriculture for checking the spread of this disease:—(1) Collecting and burning all infested stems, leaves, tubers, or bulbs is the only certain means of destroying the fungus. (2) Accumulations of vegetable matter act as nurseries for the growth and dissemination of Botrytis, and should not be allowed in a garden. (3) Gaslime or quicklime should be applied to land where the disease has existed. (4) Weeds also enable the fungus to tide over the time between crops of cultivated plants. Ornamental plants such as Pæonies and Chrysanthemums are also attacked, and may furnish spores that pass on to other plants.

PLANE TREES: Platinus. On the one hand it is possible that the trees are suffering from the smoke and injurious gases in the atmosphere, and on the other hand a fungus disease may be present. You had better send specimens for examination.

VEGETABLE CROPS: S. G. P., Kent. We are unable to make out your meaning. Have you written a previous letter on this subject?

VINES: A. R. In order to improve the condition of your vines, scatter a thin sprinkling of sulphate of iron over the border, and prick this into the soil by means of a fork, afterwards applying a thorough watering.

VIOLAS: W. J. Water the plants with a solution of nitrate of potash at the strength of 1 oz. of potash to two gallons of water. When the Violas are removed to another site, let the soil be given a liberal application of lime.

WISTARIA: W. A. H. It is impossible for us to determine what is the matter with your Wistaria unless you send a portion of the plant for examination. You do not even describe the conditions in which the plant is growing.

WORM: J. Ward. The worm could not be found. Have you another specimen?

Communications Received.—Geo. G. (Your letter has been forwarded to the Essex Educational Committee)—Commissioner of Agriculture for West Indies. **M. McN.** (The book does not appear to have reached us)—**R. W. T.** (The photograph is not suitable for reproduction)—**A. H.**—**J. P.**—**Aria**—**H. M. D.**—**C. Bros & Co.**—**J. P.**—**W. T.**—**D. B.**—**W. H. H.**—**G. B.**—**B. G.**—**S. C.**—**A. D.**—**Roy. Agr. Soc.**—**R. F.**—**J. D.**—**W. A. D.**—**W. B. H.**—**A. & B. Ltd.**—**B. M.**—**W. A.**—**B. C.**—**H. H.**—**B. F.**—**W. K.**—**H. C.**—**R. P. B.**—**W. E. B.**—**J. G. W.**—**W. F.**—**K. & Son.**—**J. W.**—**A. E.**—**H. C. C.**—**F. J. K.**—**A. P.**—**W. F.**—**Dr. A. E. R.**—**R. P.**—**J. P.**—**T. H.**—**E. H. J.**—**Dr. J. V. P.**—**Teneriffe**—**T. H. B.**—**S. & S.**—**W. H. P.**—**T. A. H.**—**Wm. C.**—**E. A. C. L.**—**G. P.**—**O. R. S.**—**W. M.**—**J. H.**—**A. P.**—**Lady G. D.**—**R. H. W.**—**Miss D. Y.**—**W. J. B.**—**F. H. D.**—**W. W.**—**H. C.**—**F. M.**

THE Gardeners' Chronicle

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COLOUR-INHERITANCE IN FOXGLOVES.

EXPERIMENTS performed within the last few years on the inheritance of flower-colour have shown that, among white-flowered varieties, considerable diversity of constitution exists. Experiments on white-flowered varieties of *Antirrhinum majus*, *Primula sinensis*, and other species, show that some, when crossed with coloured types, give plants with coloured flowers in the first generation. On selfing the hybrid plants, coloured and white plants, in the proportion of 3 coloured:1 white are obtained. White varieties that behave thus on crossing with colour are completely unpigmented, both as regards stem and flowers, and it is evident that they are lacking in at least one of the elements necessary for the production of colour. They are called recessive whites, and they behave with respect to colour as a simple Mendelian recessive to colour. Besides the recessive whites, there occur in *Primula sinensis* other white varieties which, on crossing with colour, give an exactly opposite result. These plants possess a completely pigmented stem, of a reddish colour, as opposed to the green, unpigmented stem of the recessive whites. When crossed with coloured flowers, they give white or faintly tinged-flowered plants, which, on selfing, produce

white and coloured-flowered plants in the proportion of 3 white:1 coloured. These white varieties are therefore called dominant whites. It is supposed that such dominant whites, with fully pigmented stems, carry all the elements necessary for the production of colour, and, in addition, a factor which inhibits the development of colour in the petals. In the absence of the inhibiting factor, the petals are coloured, the presence of this factor being dominant to its absence.

Experiments on the inheritance of colour in Foxgloves (*Digitalis purpurea*), published in a recent issue of the *New Phytologist*, show that, in this species also, two kinds of white-flowered varieties occur. The varieties used were white with red spots, magenta with red spots, and white with yellow spots. It may be noted that the yellow spots are due to localised groups of chromatophores, and, so far as has been observed, no Foxglove is altogether devoid of such spots, which may, however, be of so faint a colour as to be only just distinguishable. Also it has been observed that no flower with a magenta ground colour is devoid of red spots, and it would appear probable that the red colour of the spots is caused by the presence of the same factor that is responsible for the magenta ground-colour of the corolla, and that the red spots are due to local action of magenta colour factor on the yellow spots.

As the result of various crosses made between these three varieties, it was found that, of the two kinds of whites, that with yellow spots breeds true, and is recessive to the magenta type. It, therefore, behaves as a recessive white. The white with red spots may, on selfing, give rise to white like itself, to the magenta type, and also to the white with yellow spots. Such a plant may be supposed to carry a dominant white factor, inhibiting colour, at all events except in the spots. This factor we may represent as W. As the plant does not breed true to whiteness, it must be heterozygous for this factor, or Ww. That a colour factor is carried by this plant is also evident, for it possesses red spots, and produces coloured offspring, but as it also produces recessive whites (unpigmented plants) it cannot be pure (homozygous) for this factor. The colour factor may be represented as M, its absence by m, so that the complete gametic constitution of the plant as regards flower colour is Ww Mm. It follows that the gametic constitution of the white with yellow spots, which is homozygous both for the absence of the dominant white factor and the absence of colour factor, is ww mm.

It is evident that the progeny of a cross between plants of the constitution Ww Mm, and ww mm, should, if this explanation of the facts be correct, consist of all three types, viz., white-red spots, magenta-red spots, and white-yellow spots. White with red spots = Ww Mm, should bear gametes in equal numbers as follow:—WM, Wm, wM, and wm. The gametes of the white with yellow spots = wwmm, will be all wm. The zygotes resulting from the union of such gametes are:—WwMm=white, red spots; Wwmm=white, yellow spots; wwMm=magenta, red spots; wwmm=white, yellow spots. The three types should appear in the following proportions:—1 white, red spots, 1 magenta, red spots, 2 white, yellow spots. The results actually obtained in this experiment are as follow:—

White, red spots, 11; magenta, red spots, 10; white, yellow spots, 25.

A close approximation to the expected numbers was thus obtained. Among those white plants with yellow spots resulting from this cross, some should be of the constitution Wwmm, and others should be wwmm. Plants of the former constitution have not yet been identified experimentally in Foxgloves. Certain unpigmented, white-flowered plants of *Primula sinensis* have been found to carry the dominant white factor, or inhibitor of colour.

Other experiments confirm these conclusions concerning the factors involved in the production of flower-colour in Foxgloves. The existence of a dominant white factor, capable of inhibiting ground colour, and not spot colour, though both ground colour and spot colour are due to the same colour factor, may prove of importance in interpreting the origin of spots, bars, and stripes, both in plants and animals. Given the existence of specialised areas, the addition of a ground-colour factor would produce a uniformly-coloured surface, on which the specialised areas might, or might not, stand out conspicuously. Wash over that surface with a partial or complete inhibitor of colour, then the general ground colour will be suppressed, and conspicuous splashes of colour in spots or stripes will stand out on a light ground. It may well be that this differentiation of a dominant white factor, inhibiting ground colour, but not colour in spot or stripe areas, may provide a clue to the behaviour of such striped types as are known to produce, occasionally, self-coloured offspring.

Turning to the experiments on peloria, it is of special interest to find that Darwin (1868), working with Snapdragon (*Antirrhinum majus*), obtained results which indicate for this phenomenon a simple Mendelian mode of inheritance. He found that peloric plants selfed, gave plants all peloric. Peloric \times non-peloric and the reciprocal cross gave plants all non-peloric, showing that the normal form is dominant to the peloric form. On selfing the hybrid plants, non-peloric and peloric offspring were obtained in close approximation to the ratio of 3:1. The actual numbers, in Darwin's experiments, were 90 non-peloric:37 peloric.

In the Foxgloves used in the present experiments, peloria is confined to the terminal flower of the inflorescence. The peloric flowers are bell-shaped and erect, as opposed to the irregular and pendulous, lateral flowers. They may develop to an abnormal size, may possess eight or more anthers, and the stigma may have five stigmatic surfaces. The results of the experiments may be summarised briefly as follow:—

Peloric plants selfed yield all peloric. This was the case not only when a peloric flower was selfed with its own pollen, but also when a lateral flower of a peloric plant was selfed. Non-peloric plants selfed may throw both types in the ratio of 3 non-peloric:1 peloric.

Thence it is evident that peloria in Foxgloves is recessive to the normal form. This, perhaps, is not surprising, for peloria is chiefly characterised by the absence of the zygomorphy of the normal flowers, and evidence is accumulating that the relation between Mendelian dominant and recessive members of allelomorphic pairs is of the nature of the presence and absence of a single factor.

NEW OR NOTEWORTHY PLANTS.

THREE NEW CHINESE IRISES.

THE richness of the Chinese flora is indeed extraordinary, and, thanks to the enterprise of Mr. Wilson and Mr. Forrest, our gardens are rapidly being enriched by some of its treasures.

For some years I have been hoping that sooner or later we should obtain a yellow-flowered relative of *Iris sibirica*, for there appears to be considerable evidence that the blue-purple colouring-matter of many Irises is of very nearly the same composition as the yellow of others. I am told, and I can well believe, that the chemical question involved is extremely delicate and complicated, but its solution might be of great value.

In the *Kew Bulletin* for 1907, p. 321, Mr. C. H. Wright described *Iris Wilsonii* from specimens sent to him by Messrs. Veitch, of Chelsea. Last year this firm very kindly allowed me to have a plant of this *Iris*, which on June 7 began to bloom freely. By a lucky chance another Chinese *Iris*, collected by Mr. Forrest, and sent to me by Mr. A. K. Bulley, also came into flower on the same day, and this plant I propose to name *I. Forrestii*. Both these Irises have yellow flowers, and they are both closely related to *I. sibirica* and *I. Clarkei*. They are distinguished, however, by the following characteristics. In *I. Wilsonii* the flowers are borne on long pedicels, as in the western forms of *I. sibirica*; in *I. Forrestii* the pedicels do not exceed an inch in length. In the former the styles are very narrow and the standards spreading, as in *I. Clarkei*, with the edges of the blade curiously crimped; while in the latter the styles are broader than the haft of the falls, and the standards almost erect with smooth blades. The foliage also of the two plants is quite distinct, that of *I. Wilsonii* resembling the growth of the Oriental forms of *I. sibirica*, while the leaves of *I. Forrestii* are narrow and grassy, and, moreover, have the polished upper surface and glaucous under-surface, which are so marked features of *I. Clarkei*. Moreover, *I. Wilsonii* grows to twice the height of *I. Forrestii*.

IRIS WILSONII.

The hollow stems are about 2 feet in length, barely overtopping the leaves, bearing a reduced leaf, usually below the centre, and a two-flowered spathe, above the pointed green valves of which the flowers rise on solid pedicels 2 to 4 inches long. The ovary is small, trigonal, dark green, with a shiny surface, and the tube of the usual *sibirica* shape, of about the same length as the ovary.

The falls have a broad haft much veined with red-brown on a bright yellow ground. This colouring extends in a semi-circular patch on to the oblong blade, which then becomes pale yellow, with faint purplish veins. The standards, which are poised at an angle of 45°, have a very narrow, deeply channelled haft as long as the much crimped blade, the colour of which is pale yellow, with faint purplish markings. The narrow styles are bright yellow, and the crests small, quadrate and overlapping.

IRIS FORRESTII.*

The leaves are grassy, linear, about 10 to 12 inches long by $\frac{1}{4}$ inch broad, with a smooth polished upper and glaucous under surface. The

* *IRIS FORRESTII*, sp. n. — *Rhizoma* gracile; *folia* linearia, subpedalis, $\frac{1}{4}$ poll. lata, supra nitida, infra glaucescentia; *caulis* pedalis, foliosus, fistulosus; *spathe* 1-2 flora, valvis viridibus, acutis, 2-3 poll. longis; *pedicellus* 1-1 $\frac{1}{2}$ longus; *ovarium* trigonum; *tubus* latus, $\frac{1}{4}$ poll. longus; *segmenta* omnia pallide lutea; *exteriora* depressa, oblongo-cuneata, ungue castaneo-venoso; *interiora* erecta oblongo-lanceolata, ungue canaliculato; *stylis* rami saturatus lutei; *crestis* quadratis, sese tegentibus.

numerous stems are about 12 inches in height, bearing one or two reduced leaves below the centre and a single head of one to two flowers; they are hollow, but owing to the thickness of the walls, the central space is much smaller than in its allies. The spathe valves are green, pointed, keeled, 2 to 3 inches long, containing one to two flowers on solid pedicels about 1 to $\frac{1}{2}$ inch long. The ovary is pale green, trigonal with markedly hollow sides, slightly longer than the broad, many-sided tube.

The falls have a short (1 inch) horizontal haft, bearing broken veins of dark red or purple-brown

IRIS BULLEYANA.†

The third new Chinese species, to which I propose to give the above name, supplies a link between *Iris sibirica* and *Iris Clarkei*, for it has the hollow stem of *I. sibirica*, although in foliage and growth it is very similar to *I. Clarkei*.

The plant that I received from Mr. Bulley last autumn has not flowered, but he has very kindly sent me a flowering specimen. However, as the plant was uprooted some days before the bud opened, I hesitate to give its full description, and will merely describe it provisionally as an ally of *I. Clarkei*, with flowers of which the



FIG. 190.—IRIS FORRESTII, A NEW SPECIES FROM CHINA.

on a yellow ground. This colouring projects, as in *I. Wilsonii*, in a half circle on to the oblong blade ($\frac{1}{2}$ inch long by 1 inch broad), which is separated from the haft by a sharp constriction. The blade droops perpendicularly and is of a pale lemon-yellow, sometimes slightly marked with faint purplish veins. The standards are erect, with channelled haft and oblanceolate, pale yellow blade. The styles are also pale yellow, somewhat discoloured with purple, broader than the hafts of the falls, much arched and bringing the broadly triangular stigma close down on to them. The crests are small quadrate and overlapping.

standards are blue-purple and the falls mottled with the same colour on a creamy ground.

As regards habitat, *I. Wilsonii* was found by Wilson at Fang, in the province of Hupeh, in Western China; *I. Forrestii*, in open mountain meadows on the eastern flank of the Lichiang Range in North-west Yunnan. At present I am unable to state the precise locality in which *I. Bulleyana* was collected, although, if my recollection is right, it was in Yunnan. W. R. Dykes, *Charterhouse, Godalming*.

† *IRIS BULLEYANA*, sp. n. — *I. Clarkei* simillima sed caule fistuloso facile distinguenda. — *Rhizoma* gracile, late repens; *folia* ensiformia supra nitida, infra glaucescentia; *caulis* subpedalis, fistulosus; *spathe* bifloræ, valvis viridibus acutis,

THE FERNERY.

TEMPORARY VARIATION.

ONE of the more puzzling facts among many in connection with the phenomena of plant variation is that of intermittent changes of form, that is, of varietal characters which appear, disappear, and sometimes reappear, apparently quite independently of change of environment. In the study of Ferns, to which I have devoted myself for some 30 years, several instances of this have cropped up which I venture to think merit record. The first instance which I recall was that of a form of *Lastrea filix-mas*, which I found near Kilmarnock, L. f.-m. polydactyla, Druery. This was found as a large, well-established plant, with a number of fronds, the terminals of which and of the side divisions were beautifully tasselled, some of the latter having as many as 30 pointed strands to the tassels, which were evenly developed throughout every frond. Colonel Jones, of Clifton, to whom the plant was shown as found, pronounced it to be the finest form of polydactyla he had seen. As my search on the roadside coppice where the plant was found was, unavoidably, a very brief one, I suggested a further search by relatives who resided close by, and two other large plants, similarly characterised, were found in the same coppice, but quite separate from each other. The following season all three plants, grown in three different places—Aberfeldy and Kilmarnock in the open, and London under glass—became erratic and defective, with depauperate fronds hardly showing a trace of the polydactylous character, and despite the most careful treatment, have never reassumed the apparently thoroughbred form. Naturally my first care was to sow the spores of such an apparent acquisition: the result was a large batch of plants, all, with a single exception, irregular and depauperate from the outset, while the one exception, happily, turned out to be a replica of the form as found, and has, after many years, never shown a sign of retrogression. This case is rendered the more remarkable by the fact of three separate plants being found, all alike and yet all of the same ephemeral type of variation. It is to be assumed that these were of like origin, i.e., derived either from spores of an apparently normal form or that one of them was the parent, through its spores, of the other two, although, as we have seen, the spores, when sown, all yielded defective progeny with the one exception cited, representing probably one in about 200. A still more remarkable case, since it involves the temporary assumption of several characters, is that of a *Polystichum angulare*, found by me three years ago in Devonshire. This had only two very large fronds, bearing bipinnate side divisions, of a thick leathery character, of which the lower series in the centre of the frond were distinctly truncate, ending abruptly and squarely with the midrib projecting about half an inch as a translucent thorn. The frond tips were similarly characterised. We have thus three distinctly abnormal characters, greater subdivision, a stouter texture and more lucent surface, since normally the pinnæ are thin and nonlucent, and finally a truncation which is very uncommon in this species and was very marked. On extracting the plant, I was surprised to find five of the previous season's fronds attached, brown and shrivelled, but absolutely normal, without a trace of variation, and the following season, though the plant assumed full size, not a trace of any of the three abnormal features was perceptible, perfect normality being reassumed, as is the case this season also. A sowing made from the truncate fronds has yielded but a few plants, which are still very small, but so far appear to be normal, though one extremely ramose and crested variety has appeared in a very mysterious way, and is so very abnormal that I cannot bring myself to consider it as other than a stray sporeling, though it resembles nothing in my collection. Here then we have two instances of very abnormal characters being only temporarily

assumed. *Athyrium filix-fœmina setigerum*, found in the Lake District, is of normal outline, but, with all the minor divisions, fringed with translucent bristles. This, despite its normal outline, has, through its spores, produced a great number of cristate and even pericristate varieties, apparently per se, though the possibility of crosses with crested forms cannot be excluded. Of this a pericristate form in my possession has produced two crowns by simple fission of the original one, one of these has retained its original form perfectly; the other is of the same pericristate character, but utterly devoid of the bristly one, and this difference is seen in all the fronds of each form. This I am inclined to ascribe to an original cross between *setigerum* and *cristatum*, but it is none the less a curious fact that simple duplication of the crown by fission should result in the throwing out of one parental character so thoroughly in one division and its retention in the other. It must, however, be noted in this connection that a number of the *setigerum* seedlings have been known to revert, the bristly character proving itself thus to be somewhat fugitive or intermittent. A cross between *setigerum* and *A. f.-f. Victoriae* has been recently shown to me which has become true *Victoriae*, without a trace of the original bristly feature. The pulcherrimum character in *Polystichum angulare*, which consists in a falcate elongation of the inferior pinnules, whose tips extend and form prothalli (apospory) has occurred in wild plants several times, only to disappear entirely under cultivation, except in the case of the Mr. Molys variegated find, which is quite constant. Another form of variation of a temporary character is evidenced in such Ferns as *Polypodium vulgare elegantissimum* and *A. f.-f. Kalothrix*, in which very marked typical characters are now and again thrown off as it were in parts of the fronds, the normal influence asserting itself sufficiently to determine growth on normal or nearly normal lines, and yet in such a form as to constitute portions of fronds which have started on the abnormal ones, and it is a curious fact that no amount of breeding through the spores appears capable of eliminating this tendency, since sooner or later it persists in appearing. In the *P. vulgare* it has even survived hybridising with *P. glaucum*, since Schneider's remarkable hybrid, *P. glaucum Schneideri*, is a true replica on a large scale of *P. v. elegantissimum*, with all its vagaries. In such cases the eccentricity is obviously in the blood, and its occasional assertiveness is comprehensible, but the cases first cited belong to a different category, for there we have the whole system of the plant pervaded for a season or seasons with a varietal influence, which is subsequently discarded entirely. Chas. T. Druery.

THE NETTED CUSTARD APPLE.

ANONA RETICULATA is a native of tropical America, including the West Indies, where it has been cultivated for a long period. Though grown in the stove house at Hampton Court as early as 1690, the plant neither fruited nor flowered in this country till 1829. With more regular and speedy communication between our shores and the West Indies there is less need for cultivators attempting to fruit the tree in this country, where few can afford to grow trees 15 feet to 25 feet in their stoves. The specimens figured in the *Botanical Magazine*, tabs. 2911, 2912, were prepared from dried specimens and drawing sent from St. Vincent, in the West Indies. The generic name *Anona* is the native one applied to the plants in St. Domingo. Fruits may often be seen in Covent Garden market and first-class fruit shops in London. They are globular or heart-shaped. In ripe fruits the skin is reddish-brown and marked more or less with angular reticulations. Specimens sent to this country are green, being gathered before they are ripe. J. F.

VEGETABLES.

ASPARAGUS.

At the present time many growers may be considering in what way they can best assist the plants, with the view of obtaining finer or stronger heads next year.

At no other time may the plants so fully benefit from generous treatment than just now and during the rest of the growing season. Especially if the summer should prove a dry one. Few, perhaps, ever give a thought to the surface-rooting nature of the plants, or certainly more encouragement would be given to the new set of roots which form at the base of the stem and above the old ones each year. The amateur grower should realise the mistake made last autumn in allowing the old growths to remain on the plants until the berries were fully mature and fell to the ground. The seeds germinate only too freely in spring, and, if an early clearance is not made of the self-sown seedlings, which crowd the surface of the bed, their presence greatly hampers the permanent stools or roots, as they rob the ground of both moisture and nourishment. It should be the aim of the grower to relieve the bed of these without delay, using a small hand fork to raise the roots should they not draw out freely after rain.

It is common in many gardens to find that as the season advances and the shoots begin to "feather," the beds are allowed to get infested with rank-growing weeds. This is bad practice, but what perhaps proves even more harmful is setting a careless workman to clear off the weeds with a drag hoe. There is not only the very likely danger of mutilation of the young roots of the Asparagus, since they are situated near the surface, but they are apt to be left exposed, as much of the soil covering them may be drawn into the alleys with the weeds, and perhaps wheeled away with them. Only hand weeding should be practised, and this should be closely attended to so as not to allow weeds any headway. The small hand fork will prove of assistance to the workman, not only in extracting strong-rooted weeds, but, in diligent hands, serving for moulding up any crowns which have become too fully exposed, and thus helping to develop the basal buds forming on the new stems.

Beside keeping the bed free from self-sown plants and weeds, each plant should be supported as carefully as one would a tall-growing plant in the hardy flower border. Certainly one great reason for the inferior "grass" to be seen in some private gardens is that in the previous seasons the shoots were beaten down and broken off by wind and rain long before they had attained their full height and strength. The shoots having been thus bruised or destroyed prematurely, the basal buds could not mature properly, hence the weakly growths in the following season. To obtain really good Asparagus, staking, or some other means of preserving the shoots intact until they ripen naturally, is necessary. This rule must be observed with newly-planted stock just as with established clumps. Perhaps the neatest supports are stout canes about 5 feet in length. One at least should be placed by the side of each stool, and the different shoots looped to it with tar cord. Very strong clumps may require three such stakes to keep the strong growths upright and secure. Another means of support is in straining stout tar cord along the line of the plants 3 or 4 feet from the ground, with intermediate supports, tying the various shoots to the cord. Pea sticks placed about the plants would be of some benefit.

Asparagus plants make new and very strong roots during one season, and these are greedy feeders. The annual, spring, surface dressing of manure, though materially helping growth, proves insufficient. This should be

supplemented by copious and frequent waterings with liquid manure during the summer and until growth is completed, especially in the case of raised beds. If a dry summer threaten, the plants would be further assisted by spreading a good thickness of short, well-decayed dung about them. Seaweed proves an excellent mulch for Asparagus, but this is not procurable in all localities. I recommend very light dressings of agricultural salt on light, porous land during showery weather, but its use on naturally retentive ground tends to form a hard crust on the surface of the beds, making it difficult for the growths to push through should the season prove bright and dry.

Asparagus should not be cut after the third week in June, for the earlier the cutting ceases, the better chance have the plants of producing stout growths, and a longer season to become properly matured. When other choice vegetables, such as Peas and Beans become plentiful, in, say, the third week of June, then we should be content to allow the Asparagus plants to recoup themselves. *R. P.*

FRUIT NOTES.

EARLY STRAWBERRIES OUT-OF-DOORS.

In private establishments, where there is a constant demand for dessert fruit, difficulty is sometimes experienced in tiding over the gap between the indoor and outdoor crops of Strawberries. This difficulty is lessened here by planting annually a batch of young plants in a border about 12 ft. wide at the foot of a south wall. From these one-year-old plants we gather fruits from 10 to 12 days earlier than from plants in the open. The soil at the back of the border is raised, giving the whole border a rather precipitate slope, in order to expose the plants more directly to the influence of the sun's rays. Before there is any danger of the flowers being injured by frost, the plants are bedded down with clean straw and a temporary trellis is erected over the whole of the border. Canvas blinds are fixed at the top, with cords on pulleys, so that they can be drawn conveniently. The blinds are drawn over the plants every night. This precaution not only protects the flowers from frost, but it afterwards assists the swelling of the fruit. It is important that an early start be made with young plants. Therefore, some of the earliest runners must be secured for this purpose. These should be ready to be planted at the end of the month of July to enable them to become well established by the end of the season. The varieties we plant for this purpose are Noble and Royal Sovereign. The former variety is not so good as the latter in point of flavour, but it ripens a day or two earlier, which is a consideration. We gathered our first fruits this year on June 12. *H., Frogmore.*

ONONIS FRUTICOSA.

THERE are but few dwarf shrubs better suited for planting in the rock-garden than *Ononis fruticosa*. The specimen illustrated at fig. 191 gives a good idea of its compact habit of growth. It measured about 3 feet across, although but little more than 12 inches high.

The pea-shaped flowers are produced in abundance on large trusses during the whole of June. The standards are of a pale-rose colour, with a dark stripe through the centre, while the keels and wings are bluish-white, diffused with pink. The leaves are 1 inch to 1½ inch in length, and about ½ inch wide; they are lanceolate in shape, and have deeply-serrated margins. The shrub is perfectly hardy. *M.*

HARDY FLOWERS AT KEW.

IN the closing days of spring, Kew Gardens may be seen at their best. The Azaleas are marvellous in their superb colouring, masses of white, creams, flesh-pink, pale sulphur, chrome, rich gold, brilliant oranges in every shade, bright crimson and scarlet arresting the eye on every side. In the *Rhododendron* dell great bushes are loaded with countless flower-trusses ranging in colour from white, through pink to richest crimson. At the end of May, *Magnolia obovata* and *M. Lennei* were in full bloom, and *M. Fraseri*, *M. Soulangiana* and *M. conspicua* were expanding their blossoms. Beds of *Viburnum tomentosum plicatum* were a pretty feature, and a small *Fir* smothered in *Polygonum baldschuanicum* pro-

being taken by *Primula sikkimensis* and *Cypripediums*. The white and pink varieties of *Dodecatheon media* were pretty, as was *Maianthemum convallaria*, with hundreds of little spikes of white flowers. The scarlet-blossomed *Ourisia coccinea* was doing well, and two forms of *Melittis Melissophyllum*, pure white and white with a pink lip, were present. There were masses of *Ranunculus aconitifolius* by the water-side. Of *Phloxes* there were to be seen *P. divaricata* and its white variety, *P. amoena*, *P. subulata* (pink), and *P. stellaria lilacina* (lavender). There was a fine collection of *Saxifrages* in flower, these including *S. palmata*, *S. irrigua*, *S. lingulata*, var. *lantoscana*, *S. cochlearis*, *S. c. minor*, *S. Portæ*, *S. Cotyledon Hostii*, *S. Macnabiana*, *S. pyrenaica*, *S. cartilaginea*, *S. Hostii altissima*, *S. Andrewsii*, *S. cuneifolia*, *S.*



FIG. 191.—ONONIS FRUTICOSA IN MESSRS. VEITCH AND SON'S NURSERY, EXETER; FLOWERS ROSE-COLOURED AND WHITE.

mised to be a beautiful sight. At the side of the temperate house there was a splendid colony of *Celmisias*. These New Zealand plants succeed here without protection, and are the very picture of health, 50 or more specimens being in profuse bloom, some bearing flowers quite 4 inches across. It is found that they thrive better where they are not exposed to continual sunshine, these examples getting no sun until four o'clock in the afternoon.

The rock-garden was very interesting. Hundreds of *Ramondias* were in full bloom in the perpendicular rock-work, the white as well as the lavender-coloured forms being represented. In the adjoining bed the *Meconopsis* family were this year conspicuous by their absence, their place

Burseriana (looking very well, but out of flower), the pale-yellow *S. Aizoon flavescens*, *S. Aizoon Malyi*, *S. Aizoon notata*, *S. Guildford seedling*, *S. crustata*, *S. Wallacei*, *S. taygetea*, and *S. sponhemica*.

Of *Primulas*, there were present the brilliant orange-scarlet *P. Cockburniana*, a fine clump of the rare *P. Palinuri* nearly 3 feet across, *P. japonica*, *P. farinosa*, and *P. sibirica*. There were several *Achilleas*, including *A. rupestris*, *A. macedonica*, *A. argentea*, *A. ageratifolia*, *A. Huteri*, and *A. lingulata*. *Æthionema grandiflorum* was a cloud of bright pink; *Æ. Kotschyi* (pale pink) was very dwarf, being scarcely 2 inches high, and the pink *Æ. schistosum* was pretty, while a colony of *Æ.*

pulchellum on a ledge was a sheet of pale flesh-pink. *Vicia pyrenaica* is a charming little plant, forming a dense mat, with bright, carmine-red, pea-like flowers. A large sheet of *Cornus canadensis* was covered with white blossoms. The greenish-white *Anemone baldensis* was not very attractive. *A. alpina*, *A. narcissiflora* and *A. sylvestris* being prettier. The white *Daphne caucasica* was pleasing, but *D. Blagayana* was not doing at all well. Of the Pinks, *Dianthus callizonus*, *D. deltoides*, and *D. alpinus* were in bloom, as was a large colony of the bright rose-pink *D. neglectus*. There was a large patch of *Geum hybridum*, with red flowers, and other species of *Geum* were *G. elatum*, from the Himalayas (with yellow blooms), *G. chilense* (orange-red), *G. triflorum* (red), and *G. Ewenii* (orange). *Lathyrus hirsutus* was a dwarf grower, with flowers of two shades of pink, and *Linaria pallida* was a sheet of purple, yellow-spotted blossoms. *Dicentra eximia* was attractive with its pale-pink flowers, as was *D. formosa*. *Polygonum sphærostachyum*, with deep, rosy-crimson flower-spikes, was a pretty plant, and a large patch of the deep-purple *Viola gracilis* was lovely,

tiacus (deep-orange), *E. leiomerus* (pale-lavender, very dwarf), *E. philadelphicus* (mauve), *Erodium guttatum* (white flowers with a purple blotch on the two upper petals), *Potentilla nevadensis* (bright-yellow, dwarf, and pretty), *Orchis maculata*, *Iris gracilipes* (with beautiful pale-lavender flowers), *Gladiolus anatolicus* (2 feet high, with attractive pink blossoms), and *Asperula Taurina* (with small clusters of white flowers).

One of the most pleasing and instructive spots at Kew now is the Alpine house, for here can be seen many delicate rock-plants in full flower, unharmed by the devastating gales and torrents that ruin the beauty of the plants in the open air. At the end of May there were in flower in this house *Meconopsis heterophylla*, from California (a very handsome plant, 2 feet high, with brilliant orange-coloured flowers), *Linum arboreum* (yellow), *Calochortus Maweanus* (white), *C. pulchellus* (yellow), *C. amoenus* (pink), *C. Benthamii* (yellow, with reddish-brown blotch at base of petals), *Viola gracilis*, *V. hederacea*, from Australia (white, with purple centre, pretty), *Hesperis humilis* (lavender-pink), *Wahlenbergia Fitaibellii*, *Sedum ternatum*, *Rho-*

mannii (yellow), *S. nutkeana* (with branching stems of small, white flowers), *S. punctata* (little white flowers), *Pentstemon Eatonii* (scarlet, 18 inches, very handsome), *Saponaria Boissieri* (pink), *Allium Erdelii* (white), *Veronica austriaca* (light-blue), *Biscutella coronopifolia* (yellow), *Arenaria foliosa* (white), *Myosotis rupicola* (blue), *Cethionema persica* (pale flesh), *Erodium Wilkommianum* (pale-pink, upper petals heavily reticulated with purple), *Sedum spathulifolium* (bright-yellow), *Claytonia parvifolia* (pale-pink), *Wahlenbergia tenuifolia* (purple), *Lithospermum canescens* (orange), *Rehmannia Henryi* (white, 6 inches in height), a pretty variety of *Phlox pilosa* (white flowers with pink centres), *Anthemis montana* (white), *Helianthemum italicum* (yellow), *Incarvillea grandiflora* (deep rose-crimson), *Dianthus sub-acaulis* (very small pink flowers), *D. frigidus* (bright-pink), *D. Freynii* (white), *D. fragrans* (white, fringed blossoms), *D. neglectus* (rose), *D. alpinus* (pink), *D. orbiculus* (small, white flowers), *Primula verticillata* (yellow), *P. malacoides* (with branching stems of small, bluish-pink blossoms), *P. Vialii* (tall, pyramidal heads of pale, lavender-blue flowers), and *P. Bulleyana*, having orange-coloured blooms borne whorl above whorl. *Wyndham Fitzherbert*.

NOTE FROM GLASNEVIN.

LUPINUS ARGENTEUS.

THIS rare and beautiful Lupin is now in flower at Glasnevin in a cool, unheated house, and the delicious fragrance of the flowers scents the whole structure. It forms a rather loose-growing, straggling bush, at present 3 feet high. The flowers are borne in racemes about 6 inches long and disposed in irregular bracteolate whorls of fives, four to six whorls being produced on each raceme. The vexillum of the flower is purplish-blue, veined with a deeper blue and a yellow base. The wings also have the veined bluish appearance, while the keel is white tipped with deep purple. Even when not in flower the plant is beautiful, for the leaves, stem and petioles are covered with whitish hairs which give it a more silvery appearance than the leaves of *Geranium argenteum*. The leaves consist of seven to nine oblong-lanceolate leaflets an inch long, and compare favourably with *Leucadendron* leaves. Throughout the winter the foliage is retained, but the older leaves are shed in spring just before the plant comes into flower. This Lupin was received at Glasnevin as *L. lepidus*, which is of herbaceous habit. Both are natives of North America. *L. argenteus* is difficult to obtain true, as there are two more plants which are under the same name, *L. argenteus*, Agardh=ornatus, and another is a synonym of *L. laxiflorus*. C. F. Ball.

PHALÆNOPSIS IN CALIFORNIA.

THE accompanying illustration shows a very fine importation of *Phalænopsis Schilleriana* in the nurseries of the McRorie McLaren Co., near San Francisco, and a note sent by a correspondent gives some interesting particulars of this speciality of the company, which imports and grows the large-flowered species extensively, both for sale as plants and for supplying flowers for cutting.

Our correspondent states:—"The varieties which I noted in the greatest quantity were *P. amabilis* (? Aphrodite), *P. Schilleriana*, and *P. Stuartiana*. A large batch of *P. amabilis*, numbering five or six thousand plants, looked remarkably well, all balled up in *Osmunda* fibre and full of long, healthy roots. Many of the plants in this lot had leaves 18 inches in length. Among other remarkable specimens in this nursery, I noted a splendid plant of *Vanda Sanderiana*, with 15 large growths."



FIG. 192.—PHALÆNOPSIS SCHILLERIANA IN A SAN FRANCISCAN NURSERY.

while *Androsace foliosa*, bearing flesh-pink flowers with carmine centres, was delightful.

Other noteworthy plants were the yellow *Trollius pumilus* from the Himalayas, the white *Potentilla tridentata*, the pink *Valerianaella congesta*, *Veronica pectinata rosea*, *Parrya Menziesii* (pink, 6 inches), the blue *Lithospermum Gastonii*, the yellow *Erysimum rupestre*, *Verbascum phonicium album*, *Tiarella unifoliata*, *Cytisus Kitaibelii* (a dwarf, creeping plant, with bright-yellow flowers), *Oxalis enneaphylla*, of which here were several fine plants just coming into bloom), the blue *Veronica pectinata*, *Lathyrus luteus* (about 18 inches in height, with orange flowers), *Valeriana tripteris* (with little heads of flesh-pink blooms, about 9 inches high), *Lonicera pyrenaica* (a little bush, with small, ivory-white flowers), *Cytisus decumbens* (a fine carpeting plant, with pale-yellow flowers), *Arenaria montana*, *Geranium subcaulescens* (dwarf, pink), *G. incisum* (a strong grower), *G. vinereum* (blush), *Phyteuma orbiculare* (bearing heads of purple-blue flowers about a foot in height), the yellow-blossomed *Morisia hypogæa*, *Polemonium humile* (pale-blue, dwarf, and pretty), *Ranunculus monspeliacus* (bright-yellow, very like *R. nyssanus*), *Erigeron auran-*

dodendron kamschaticum (rose), *Gypsophila cerastioides*, *Senecio aurantiacus*, *Hyacinthus amethystinus*, *Aster Stracheyi*, *Campanula spicata* (purple-blue, 6 inches), *C. Portenschlagiana*, *Achillea ageratifolia*, *Corydalis thalictrifolia*, *Asperula hirta* (with tiny, white flowers), *Brodiaea ixioides splendens* (very pale-yellow), *Scutellaria indica* (lavender flower-spikes), *Aster alpinus baldensis*, *Corydalis tomentosa*, *Globularia vulgaris*, *Potentilla nitida grandiflora* (pale-pink), *Lithospermum prostratum* (deep blue), *Cypripedium ventricosum* (brown and yellow), *Dodecatheon Jeffreyi* (tall, pink), *Corydalis Wilsonii* (deep yellow), *Asperula suberosa* (pale-pink), *Phyteuma Michelii*, *Erodium corsicum* (pink), *Cypripedium pubescens* (yellow), *Potentilla ambigua* (rich yellow), *Arenaria gothica* (very dwarf, with small, white flowers), *Trientalis europæa* (small starry, white blossoms), *Dodecatheon pauciflorum*, *Alyssum spinosum* (with closely-set heads of minute, white flowers), *A. condensatum* (yellow), *Veronica filifolia* (small white blossoms, striped with purple, pretty), *Gentiana verna* and *G. bavarica* (brilliant blue), *Lychnis Lagasæ* (pink), *Arenaria muscosa* (a close mat of tiny white flowers), *Symphandra Warmeri* (purple), *Pentstemon humilis* (blue), *Saxifraga Hauss-*

THE EFFECTS OF LAST WINTER UPON VEGETATION.

THE winter of 1909-10 having been more trying to plants on the border line of hardiness than any we have experienced since 1894-5, a few notes on its effects may be of some service as a guide to gardeners on the west coast of Scotland. Many plants which withstand severer frost than we experienced last winter succumbed to the rapid alternation of mild wet with sudden cold. An early frost in the beginning of November caught things still growing, and a late frost in the first week of May killed some that had struggled through the winter, and nipped the young growths of many of the early Rhododendrons. The following notes apply to plants either of recent introduction or of doubtful hardiness. In every case, except where noted, they were in the open border, in some cases protected by an armful of Fern. Although the garden here is not more than a mile from the sea, it is 130 feet above the sea-level, and not nearly so favourable to tender growths as others in the district. For instance, I cannot succeed with *Dicksonia*, but on the other side of Luce Bay it grows luxuriantly.

KILLED OUTRIGHT.

<i>Abutilon vitifolium</i>	<i>Erica lusitanica</i>
<i>Rhododendron Falconeri</i>	<i>Correa cardinalis</i>
<i>Rhododendron calophyllum</i>	<i>Metrosideros coccinea</i>
<i>Olearia nitida</i>	<i>Gaura Lindheimeri</i>

INJURED.

<i>Eugenia apiculata</i>	<i>Embothrium coccineum</i>
<i>Rhus cotinoides</i>	(about 4 feet high, three out of four killed, the fourth growing vigorously)
<i>Tricuspidaria lanceolata</i> (uninjured on east wall)	<i>Arbutus Menziesii</i>
<i>Eleagnus macrophylla</i>	<i>Viburnum Sieboldii</i>
<i>Eucryphia cordifolia</i> (May frost killed young growth)	<i>Hydrangea Lindleyanum</i>
<i>Buddleia globosa</i> (some were unhurt)	<i>Rhododendron Aucklandii</i> (some plants unhurt)
<i>Berberis nepalensis</i>	<i>Rhododendron Kewense</i> (some plants unhurt)
<i>Olearia macrodonta</i> (in some cases)	<i>Erigeron mucronatus</i>

UNINJURED.

<i>Clianthus puniceus</i>	<i>Rhododendron Shilsonii</i>
<i>Buddleia Colvillei</i>	<i>Rhododendron Hodgsonii</i>
<i>Berberidopsis coralina</i>	<i>Rhododendron Smirnowii</i>
<i>Carpenteria californica</i>	<i>Rhododendron ciliatum</i>
<i>Mutisia decurrens</i>	<i>Rhododendron glaucum</i>
<i>Aloysia citriodora</i>	<i>Rhododendron cinnabarinum</i>
<i>Sophora tetraptera</i>	<i>Rhododendron arboreum</i>
<i>Solanum crispum</i>	<i>Rhododendron fulgens</i>
<i>Ceanothus Veitchii</i>	<i>Rhododendron barbatum</i>
<i>Myrtus communis</i>	<i>Rhododendron campanulatum</i>
<i>Solanum jasminoides</i>	<i>Rhododendron campylocarpum</i>
<i>Ecchremocarpus scaber</i>	<i>Notospartum Carmichaelii</i>
<i>Nothofagus obliqua</i>	<i>Chamærops excelsa</i>
<i>Cupressus sempervirens</i>	<i>Phormium tenax</i>
<i>Buddleia variabilis</i>	<i>Fuchsia Riccartonii</i>
<i>Buddleia himalaica</i>	<i>Fuchsia globosa</i>
<i>Leptospermum scoparium</i>	<i>Styrax japonica</i>
<i>Coriaria terminalis</i>	<i>Kniphofia caulescens</i>
<i>Coriaria japonica</i>	<i>Lilium auratum</i>
<i>Azara microphylla</i>	<i>Lilium giganteum</i>
<i>Desfontainea spinosa</i>	<i>Crinum Moorei</i>
<i>Cordylone australis</i> (young plants killed to ground, older ones unhurt)	<i>Crinum Powellii</i>
<i>Davidia involucreata</i>	<i>Crinum capense</i>
<i>Corylopsis spicata</i>	<i>Sparaxis pulcherrima</i>
<i>Erica arborea</i>	<i>Sparaxis pendula</i>
<i>Indigofera Gerardiana</i>	<i>Meconopsis Wallichii</i>
<i>Illicium religiosum</i>	<i>Meconopsis aculeata</i> (true)
<i>Enkianthus japonicus</i>	<i>Incarvillea grandiflora</i>
<i>Olearia nummularifolia</i>	<i>Incarvillea Delavayi</i>
<i>Olearia stellulata</i>	<i>Libertia grandiflora</i>
<i>Romneya Coulteri</i>	<i>Chrysobactron Hookeri</i>
<i>Eucalyptus coccifera</i>	<i>Roscoea purpurea</i>
<i>Eucalyptus Whittinghamii</i>	<i>Pancratium illyricum</i>
<i>Eucryphia pinnatifolia</i>	<i>Arum crinitum</i>
<i>Rhododendron grande</i> (argenteum)	<i>Campanula fragilis</i>
<i>Rhododendron Thomsonii</i>	<i>Parochetus communis</i>
	<i>Omphalodes Lucida</i>

Out of a large collection of *Cistus*, several were killed, some injured, but the majority were unhurt. Among the *Veronicas* there were many deaths, but many varieties of the shrubby species survive unhurt.

The above is not a complete list, as it takes some time to realise one's losses, but it is faithful so far as it goes. *Herbert Maxwell, Monreith, June 20.*

AGAVE SCOLYMUS AND ITS ALLIES.

SOME years ago, about 1890, the late Prof. Todaro, of the Botanic Garden in Palermo, published a description, accompanied by plate 35 in his *Hortus Botanicus Panormitanus*, of *Agave multiflora*. This *Agave* he put under the subgenus *Littæa* on account of the flowers being on very short branches, arranged along the scape, similar to those of this subgenus.

In 1892 Prof. Wm. Trelease, the director of the Missouri Botanical Gardens at St. Louis, so well known through his classical studies on *Yuccas* and *Agaves*, published and figured another plant as *A. Engelmannii* (*Rept. Miss. Bot. Gard.*, 1892, 167, t. 55-56). Though this plant exhibited the same kind of inflorescence as Todaro's plant, Prof. Trelease did not hesitate to consider *A. Engelmannii* as an *Euagave*. In this he was certainly right, as the flowers of both species in form and position are those of *Euagave* and not of *Littæa*.

their affinity with those of *A. Scolymus* is evident.

This year another new plant flowered at Florence, with a similar inflorescence and leaves almost of the shape of *A. grandibracteata*, Ross (Jc. et descr. pl. nov. vel rar., *Hort. Bot. Pan.*, t. 1).

There was further last year a plant in flower at La Mortola with a paniced inflorescence, exactly similar in habit to *A. grandibracteata* as represented by Dr. Ross (l. c. t. 1, fig. 1), which came very close to the original description of *A. Scolymus*. In our plant, as in Dr. Ross' figure, the upper lateral branches of the inflorescence were very short, showing thus how the littæoid inflorescences of the former species can be explained.

All these plants show great resemblance between them as regards their scape, the shape of the bracts, and their lateral flowering branches. These branches have the pedicels arranged at their top, almost in an umbellate way; thus



FIG. 193.—CARNATION "MRS. E. MARTIN SMITH": A WHITE BORDER VARIETY.

(Received an Award of Merit on June 7. See p. 391.)

The two species besides are very closely allied, a fact which can easily be ascertained by a close examination of the descriptions and figures of both species. The differences seem mainly—not exclusively—to consist in the shape of the leaves and the form of the bracts, which are both narrower in *A. multiflora*. The two species can be kept distinct, if the dividing characters are not broken down by intermediate forms. To judge from the leaves alone, they seem to belong to the group *Rigidæ*, and to be similar to *A. polyacantha*, were it not for the robust spine. Their relationship is, however, quite a different one.

In 1909 Prof. Pampanini described another species, which had flowered in the Botanic Garden of Florence and which exhibited the same strange littæoid inflorescence as those above, under the name of *A. littæoides*. The leaves of this new species bear much stronger spines, and

the flowers stand in very characteristic, dense, and almost globular clusters. This is quite a striking feature, if the inflorescences of these *Agaves* are compared with those of other species. The littæoid form of panicle is caused through the abbreviation of the lateral branches.

I am convinced that all these species are closely allied, though so far my observation is only based on the characters given above, but I feel sure that the shape of the flowers and fruits will show this to be the case. They form a distinct group under *Euagave*, easily recognised also by their leaves, less by their dentation, for which I propose the name *Agave Scolymoides*.

A. multiflora and *A. Engelmannii* flowered at La Mortola several years ago. I am sorry I did not preserve their flowers. None of them has produced capsules or offshoots; neither has *A. littæoides* done so at Florence. The plant mentioned above as "quasi-*A.*

Scolymus made a few capsules at La Mortola. They are oblong-clavate, with a short beak, about 4 cm. long. The seeds are rather small, half round or nearly so, shining black, and about 6 mm. long.

As to *A. Scolymus*, Karw., it is not at all clear what this plant really was, and whether we still have it in our gardens, though there are plants which bear this name, and it is not unlikely that some of them may after all prove to be the right thing. According to the original description, republished by Salm-Dyck (*Bonplandia*, 1859, 89), there seems to be no doubt that *A. Scolymus* has the same structure of the inflorescence. The description runs: *scapo stricto apice paniculato, pedunculis brevibus adscendentibus, floribus fasciculatis*.

A. grandibracteata, Ross, and the plant from La Mortola seem to agree better, especially as regards the leaves, with the original description of *A. Scolymus*, than the two plants figured by Fitch, one of them described by Sir J. D. Hooker in *Bot. Mag.*, t. 5493, as *A. Saundersii*; the other by Mr. J. G. Baker as *A. Scolymus* in *Ref. Bot.*, t. 328. No doubt they belong to these Agave *Scolymoides*, although the empty bracts on the scape in both figures, chiefly in *Ref. Bot.*, do not quite correspond to the type represented on Dr. Ross' plate.

A certain relationship exists between these Agave *Scolymoides* and *A. Wildingii*, Tod., and its allies, as already pointed out by Todaro under this species (l. c. t. 32). I think, however, that these latter species form another different group, for which I have used in my manuscript notes, the term Agave *Antillares*. *A. B.*

SPRING CABBAGES.

THE following is a report of the National Vegetable Society's Committee on the trials of autumn-sown Spring Cabbages, conducted respectively at Twickenham, Middlesex, Sutton Green, Surrey, and Romford, Essex.

AUTUMN, 1909—SPRING, 1910.

In response to the invitation of the committee to various well-known seedsmen, 39 stocks of Cabbage seeds were sent in by 19 diverse firms. The seeds were all forwarded to Mr. G. Wythes, V.M.H., treasurer, who, with Mr. Owen Thomas, V.M.H., kindly undertook to divide, number and forward them, under number only, to the respective trial stations. The various designations of the stocks sent were absolutely withheld from all by these gentlemen. The instructions sent to each station were that one portion of each stock should be sown on July 31, 1909, and a second sowing be made on August 14, thus enabling duplicate plantings and trials of each variety to be made. These dates, for such purposes, were carefully observed, and in each case plantings were performed almost simultaneously so soon as the seedling plants were fit for such purpose. The trial sites were in open fields, in very exposed situations, and were conducted on strictly market-garden lines. The Twickenham soil was of a fairly retentive loam on a deep base of gravel, that of Sutton Green a very sandy loam on a base of yellow sand, and that of Romford on clay. Distances apart in rows, lengths of rows, 30 plants in each, and general culture were identical, no special treatment having been furnished.

Mr. G. Hobday, of Romford, having reported that, on his stiff, wet clay, his earliest planting of the Cabbages had failed, visits by the trial sub-committee were paid first to Twickenham (Mr. William Poupart's field) on April 21, and to the Times Experimental Farm, Sutton Green, Surrey, on April 22, their observations then made being chiefly limited to the first sowings and plantings for the trials. On both occasions very full notes were taken by the members of each stock, and, after careful comparison, the following marks and classification, based exclusively on the first sowing or first early merits of each variety, were unanimously agreed to. The members also agreed that, to secure quite early, firm hearts in the spring, sowings of the best varieties should always be made at the end of July or early in August. It is specially worthy of notice that

several varieties bolted to flower badly from the first sowing, but evidenced that defect very slightly from the second sowing.

It is interesting to record that the later or August 14 sowing of all the previous-named varieties should have shown, in the first place, much later hearting, and, generally, much more leafy production, but also that, in scarcely a single case, did any of the plants bolt to flower. Even those varieties of which, when sown on July 31, every plant bolted, gave not more than 5 per cent., and, in some cases, not more than 1 per cent., of bolted examples when sown at the later date. None the less, there can be no doubt but that such varieties are better suited for spring than for autumn sowing. Visits to the trials in all three cases, some two to four weeks later, showed that, while all those varieties selected as the best and earliest maintained their character, some others were in very good form, though all distinctly later and more leafy. Some two or three varieties were specially so, and hardly merit garden cultivation.

The Romford trial, from the second sowing, on Mr. G. Hobday's stiff soil, practically reproduced the results of the second sowing and planting at both Twickenham and Sutton Green, although growth was, perhaps, rather more leafy. In every case the trials were most ably, admirably, and impartially conducted.

In presenting this return of the respective merits of each variety, not only in relation to earliness of hearting and to trueness of stock, but also in relation to bolting to flower tendencies, the committee strongly emphasise the importance of securing stocks that are very early hearters, but are also rigidly true in character. Still further, having regard to the fact that no fewer than 11 stocks bolted off to flower prematurely under the earliest conditions of planting, and that several others showed that from 5 per cent. to 10 per cent. of bolters, as well as being very irregular in character, seedsmen are strongly advised to specially catalogue all such for spring sowing only. It would greatly help customers were Cabbages classified as small hearting and first early, medium hearting or maincrop varieties, and if all those which bolt to flower freely from autumn sowings were classed as best fitted for spring sowing and summer hearting. In relation to the two first-named sections, it should be stated that small, first early-hearting Cabbages may be planted as close as 12 inches apart, the breadth being cleared from the ground as fast as cutting proceeds. The second or stronger maincrop section should be planted in rows 24 inches apart, as with these the stems can remain to sprout till the following spring.

The committee desire to mention that the trials of 72 stocks of Onions sent in by the before-named seedsmen were duly sown under number on August 20 last in long rows, and plants from each row have been lifted and replanted in duplicate rows, thus presenting every appearance of providing first-rate trials of bulbs in July next. Similar trials are conducted at Twickenham and at Sutton Green. At the latter place also will be extensive trials of early Dwarf Peas and early Potatoes.

ALEXANDER DEAN, V.M.H. (Chairman).

May 30, 1910.

THREE MARKS OR HIGHLY COMMENDED.

For Special Earliness and Excellence.

First and Best, Messrs. Hurst & Sons, Houndsditch.

Harbinger, April, and Flower of Spring, Messrs. Sutton & Sons, Reading.

Ellam's Selected Early and Wheeler's Imperial, Messrs. James Veitch & Sons, Chelsea.

Early Market, Early Feltham, and Myatt's Offenham, Messrs. Watkins & Simpson, Covent Garden.

Wheeler's Imperial, Messrs. Wheeler & Son, Warminster.

Early Evesham, Messrs. Yates & Son, Evesham.

TWO MARKS OR COMMENDED.

All Best Suited for Later Hearting.

Heartwell Marrow and Mammoth Beefheart, Messrs. James Carter & Co., Holborn.

Harbinger (not Sutton's), Messrs. Dickson & Robinson, Manchester.

Milecross Marrow and Improved Excelsior, Messrs. Dickson & Son, Belfast.

Select Early Rainham and Selected Wheeler's Imperial, Messrs. Hurst & Sons, Houndsditch.

Blackwell Early, Messrs. Kent & Brydon, Darlington.

Conqueror, Messrs. Pearson & Sons, Nottingham.

Ellam's Early Dwarf, Messrs. Robert Veitch & Son, Exeter.

Nonsuch, Messrs. Watkins & Simpson, Covent Garden.

Birmingham Market, Messrs. Yates & Son, Evesham.

The following varieties received one mark only:—Earliest and Best, First Crop, Flower of Spring (not Sutton's), Emperor, and Market Garden.

The following stocks very largely or entirely bolted to flower prematurely from July 31 sowings:—Express, Model, Early Garden, Little Queen, Early Conical, Early Express, Earliest Excelsior, Earliest of All, Paris Market, and Express Extra Early.

The following lists are appended by Mr. Charles Foster as indicating the results of his observations of the growth of each variety from the later sowings and plantings on his sandy soil.

Extra-early hearting for early August sowing and September planting. Recommended to be grown 1 foot square. Varieties: Ellam's Early Dwarf, Sutton's April, Veitch's Selected Ellam's, Birmingham Market (Yates), Early Market (Watkins & Simpson), Harbinger Extra Early (Sutton), Wheeler's Imperial, Improved Excelsior (Dickson's) Early Rainham (Hurst & Son), Johnson's First Crop, Conqueror (Pearson), Early Offenham (Watkins & Simpson), and Blackwell Early (Kent & Brydon).

Early hearting for August sowing, medium size, for planting 18 inches square. Varieties: Heartwell (Carter's), Beefheart (Carter's), Milecross Marrow (Dickson), Johnson's Market Garden, First and Best (Hurst), Early Evesham (Yates), Nonsuch (Watkins & Simpson), Early Feltham (Watkins & Simpson), Flower of Spring (Sutton & Sons), Emperor (Webb & Sons), Earliest and Best (Dickson & Robinson), and Harbinger (Dickson & Robinson).

The following varieties are recommended for spring sowing or for autumn sowing after August 14 in the South of England. Sown on or after August 14. These are, May 19, excellent in every way, good hearts and very even stocks, equal to the best of the other varieties sown on the date named. They are worth three marks, being compact in growth, with conical hearts. Carter's Model, Extra Early Express (Vilmorin), Earliest of All (Veitch, Exeter), Dobbie's Earliest, and Little Queen (Daniels).

The following varieties were not so good, with outer leaves more spreading: Early Garden, Early Conical, Excelsior, Paris Market, and Early Express.

PLANT NOTES.

BEAUMONTIA GRANDIFLORA SUPERBA.

In a recent issue of the *Gardeners' Chronicle* a correspondent remarks on the lack of appreciation shown by horticulturists generally towards a certain section of tropical exotics, instancing the Bromeliaceæ. While it is true that the enthusiast sees in the object of his own particular penchant a fascination which is not so obvious to others, it is well that attention should occasionally be drawn to the merits of certain plants which are likely to be overlooked in the specialisation of to-day.

Beaumontia grandiflora superba is a very handsome, warm, greenhouse evergreen shrub. Well adapted for covering a pillar, or rather, it succeeds best when planted out in a restricted border of loam and peat, with ample drainage, copious supplies of water being required during the growing season. When in good health the foliage is dark glossy-green, and is retained until new growth commences in the spring. The flowers are large, trumpet-shaped, white and delicately scented. They are produced on the short-jointed, well-ripened growth of the previous year. If treated to an excess of heat and moisture, a rank, flowerless growth will result. The subject under notice recently flowered in the long plant corridor in Glasgow's leading public park. *Fred. W. Jeffery, Langside, N.B.*

THE ALPINE GARDEN.

SENECIO DORONICUM.

UNDER this name I grow a plant which is generally very well known, and which occurs usually in stone slopes at considerable elevations. It is what may be called a conspicuous tourist plant of striking beauty and unvarying character. As such it finds its place in all floras, and I now translate M. Correvon's description: "Plant covered with faint, woolly down, which is shed at maturity: leaves thick, toothed, oval-oblong." The remaining sentence describes the two or three flower-heads to each stem, which are large and of a singular rich orange. I would add that the leaves are, in my experience, of a dark iron-grey on their upper surface, glabrous in general effect, and of a dense, almost-succulent texture. The tomentum, too, is more marked than this description suggests. On the reverse of the leaves it is conspicuous. The plant grows as a single crown usually, or with two or three individuals laxly gathered together at the most: it never spreads into a wide, united patch. This is *Senecio Doronicum* of the Alps, a plant I have grown for many years from repeated batches collected in different stations. I have never found it under cultivation to vary in the least degree from the above description. What, then, I write to ask, is the history of the "*Senecio Doronicum*" which is grown in big patches at Kew and at Oxford under this name, and under this name was shown the other day at Vincent Square? For this *S. Doronicum*, almost, if not quite, indistinguishable in flower from the Alpine plant (perhaps a trifle less rich in the tone of its orange), is almost completely lacking in tomentum, has thin-textured, flaccid leaves of a clear green, and, stem and leaves alike are hairy to the point of being hispid. Further, this plant grows on and forms a wide, dense, luxuriant mass, prolific of flower-stems. Is this alteration simply due to long cultivation, then, or is it specific? For my Alpine plants retain their Alpine character, as I say, without swerving. Austere, solitary, with its white-lined leaves of sombre waxy-grey, and its wonderful flowers of deep orange-gold, the Alpine *S. Doronicum* is a beauty and a treasure. This other development of it, lush and lax and showy, has lost all the well-bred and elegant magnificence of the mountain plant, and developed into a mere spreading golden weed. I should like to know more about the history of this degradation, if degradation there has been. *Reginald Farrer.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Cool-house species.—Beside the ordinary occupants of this house, which consist principally of *Odontoglossums* and *Oncidiums*, there are other species of Orchids which are well worthy of attention. Among them is the sweet-scented *Trichosma suavis*, an epiphytal Orchid of dwarf habit, and without pseudo-bulbs. The partially developed stems are now making new roots, and, if repotting is needed, this should be done at once. Fill the pot to three-quarters of its depth with drainage, and use a compost consisting of equal parts of *Osmunda* and *Polypodium* fibres, with which plenty of small crocks has been mixed. The plant should be kept moderately moist throughout the year. *Ada aurantiaca* is another very desirable species; its showy cinnamon-orange-coloured flowers produce a lovely effect when arranged with the long, arching spikes of white *Odontoglossums*. The plants have just gone out of bloom, and the half-formed growths will quickly produce fresh roots. New growths will also be pushing from the base, therefore, any plant requiring a larger receptacle should be turned out of its pot and be repotted afresh, following the directions given for the preceding species. After repotting, afford but little water for a few weeks, as the growths are liable to damp off before the plant is thoroughly established, but when well rooted, copious supplies of moisture may be given. A little gem amongst the cooler-growing *Lælias* is the bright, orange-scarlet flowered *L. monophylla*. It is a difficult plant to "establish, but if well rooted in a suitable compost, kept cool and moist, it grows satisfac-

torily and flowers freely from every slender stem. At the present time plants of this species are producing their flower-spikes, and it is advisable to elevate them well up to the roof glass, but a draughty position or where they will dry too quickly should be avoided. Afford plenty of water to the roots, and carefully shade the plant from all sunshine. Such well-known Orchids as *Lælia autumnalis* and *L. albida*, that have been rested in this house and are now starting to grow, should be suspended at once in a light position in the Mexican house; they will need plenty of water whilst the growths are developing. Any repotting required may be done at this time. After flowering return the plants to the cool house. The singular *Epidendrum* (*Nanodes*) *Medusæ* is now growing freely and will require an abundance of water. Suspend the plant close to the roof, it being necessary that a strong light should be behind the flowers, in order that the colours may be seen to advantage. The rare and pretty *Odontoglossum Galleottianum*, a dwarf species much resembling in habit *O. Cervantesii*, is now commencing to grow, and, if necessary, may be afforded fresh rooting material. The plant should be suspended over the cool *Odontoglossums* in quite small, well-drained, shallow pans, with *Osmunda* and *Polypodium* fibres as a rooting medium; cut the materials up rather finely and pot moderately firmly. In order to obtain flowering growths, afford plenty of water till the growth of the new pseudo-bulbs is completed, but in the resting season keep the compost moderately dry. These remarks are also applicable to *O. Cervantesii* and *O. Rossii*. The natural hybrids *O. Humeanum* and *O. asperum* may also be included. Such cool-growing *Pleiones* as *P. humilis*, *P. Hookeri*, *P. pogonioides*, and *P. yunnanensis*, are now in full growth and need sufficient water to keep the roots thoroughly moist. The plants should be suspended in the lightest position available, for when grown in too much shade they do not retain the tips of their leaves healthy nearly so long as is desirable.

Cool-house Dendrobiums.—Among *Dendrobiums* that thrive well in this house are the following species: *D. Kingianum*, *D. K. album*, *D. delicatum*, *D. speciosum*, *D. Hillii*, *D. fusiiforme*, *D. teretifolium*, *D. linguiforme*, *D. tetragonum*, *D. subclausum*, *D. glomeratum*, and *D. japonicum*. Any of these plants now starting to grow may have fresh rooting material afforded them; they prefer a shallow layer of compost to root in, consisting of *Osmunda* and *Polypodium* fibres. All of them thrive best when suspended in a strong light. *D. teretifolium* is best grown on a teak raft with a little of the compost packed closely between the bars, under the bars, and under the base of the plant; suspend the receptacle so that the foliage hangs down naturally. *D. Victoria Regina* seems to prefer rather more shade and thrives best on a raft with plenty of *Sphagnum*-moss added to the compost, suspended in an almost horizontal position. These cool-growing *Dendrobiums* should be well supplied with water at the root when growing freely, but they require to be kept rather on the dry side after their growth is completed.

THE HARDY FRUIT GARDEN.

By A. R. SEARLE, Gardener to the Marquis of Northampton, Castle Ashby, Northamptonshire.

Gooseberries.—In these gardens the Gooseberry crops will be very light, except upon a few bushes trained against walls. Such plants seldom fail to bear well, and for this reason it is desirable to have some Gooseberries trained against walls in the shape of a grid-iron or as double and treble cordons. By planting in favoured aspects the wall trees produce ripe berries very early in the season, when culinary fruits are by no means plentiful. In case any particular bushes are heavily cropped, those who require extra fine fruits for special purposes must thin out the berries and apply frequent waterings in dry weather, also diluted liquid manure from the farmyard. Manure of any description, however, must not be afforded after the berries have commenced to ripen, as this will affect the flavour of the fruits.

Summer pruning.—The summer pruning of Gooseberries and Red and White Currants should now be carried out; this will admit more sunlight and air to the interior of the bushes, and the fruits will swell to a larger size. Trained Gooseberries or Currants should have the leading

shoots laid in intact unless they have already covered the allotted space. In this latter case the points should be pinched out. Pinch all other shoots at the fifth leaf and all secondary shoots that form later may be removed entirely. Bush plants may be treated similarly, pinching the points of all the leading shoots. Red and White Currants are often affected with black fly at the ends of the shoots, and for this reason the tips, after they are pinched, should be removed to the fire heap and burned immediately. If an attack of aphid or other insect pest is very bad, it may be necessary to syringe the bushes with quassia extract or some other insecticide. This dressing should be carried out at once, selecting the late afternoon for the operation, and being careful to wet thoroughly the under sides of the leaves.

Pears.—In cases where there are heavy crops, thinning must be carried out in order to obtain fruits of special size for table use. It will easily be seen which fruits are attacked with the Pear midge, and these should be burned together with those which have fallen from the trees. Apply copious waterings to trees growing against warm, brick walls, and occasional applications of liquid manure from the farmyard may be given to any trees that are bearing crops.

General work.—Tie in the young canes of Raspberries required for cropping next season, and remove all the weak and surplus growths in order to allow the others as much light as possible. Raspberries promise to be a very good crop in these gardens, and copious supplies of water must be given, especially to those plants which are growing on light and porous soils. If manure water is available this may also be applied. The same remarks apply to the Loganberry. Continue to shorten the young shoots of Plum and Pear trees according to previous directions, tying in all shoots required for filling the wall space. Endeavour to keep the trees clean from insect pests.

FRUITS UNDER GLASS.

By B. GOODACRE, Gardener to Sir Ernest Cassel, G.C.B., Moulton Paddocks, Newmarket.

Young vines.—The young plants which were placed in 10-inch pots some time ago may be stopped when the canes are about 6 feet long. Pinch out all the lateral growths. They require more air and less shade now, in order that the canes may harden gradually before they are placed out of doors. Syringe the foliage once or twice daily according to the weather. Keep a sharp look-out for any mildew or insect pests, taking prompt measures for their eradication.

Newly-planted vines.—These should have the points removed when they have made 6 feet of growth, stopping the laterals at one or two leaves. Ventilate the house freely whenever the weather is favourable, and syringe the foliage each day. A mulch of thoroughly decomposed horse manure will prevent the surface of the border drying rapidly. The shading may be removed by degrees from the roof glass, and the foliage will then be strong enough to stand full sunshine.

Late vineries.—The Grapes in the latest houses having been thinned, the vines may be given liquid manure both in inside and outside borders. Both top and bottom ventilators may be used when affording air, leaving a "chink" at the top of the house open all night. Damp the paths several times daily to maintain a moist atmosphere. Such dampings should be mainly on the paths and any bare walls, as if water is applied frequently to the borders it makes the surface soil sour. Liquid manure made from horse dung may be used to charge the evaporating pans, and to damp the paths in the evening. Very little fire heat will be required, except in dull weather, and at night, when a gentle heat in the pipes not only helps to dissipate excessive moisture, but also tends to cause a circulation of air. Attend regularly to the pinching of lateral growths.

Fruit trees in pots.—The trees from which the fruit has been gathered may now be placed out-of-doors. Plunge the pots to the rim in an open, sunny position, allowing each tree ample room in order that the wood may mature. Give regular attention to watering, supplying liquid manure and sootwater occasionally. During hot, dry weather, a good syringing with clean, soft water at about 4.30 or 5 p.m. will be very beneficial.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman,
Royal Gardens, Windsor.

Asparagus.—It will soon be necessary to discontinue cutting Asparagus. This must depend to some extent on the districts, but the middle of June is late enough for the southern counties. Beds containing plants intended for forcing should be left uncut as far as possible, so that the plants may have time to mature their growths. They should be given a good dressing of agricultural salt during showery weather, and, in dry weather frequent waterings with liquid manure from the farmyard will be beneficial. It is advisable, when the plants become 3 or 4 feet high, to afford them support against rough winds by having a number of stout stakes driven into the ground along the rows, so that by stretching a wire along the rows of stakes the plants may be secured by ties of ordinary matting. Little further attention will be necessary beyond keeping the beds free from weeds during the growing season.

Beetroot.—The earliest batch of Beet should now be ready for use. Thin successional crops, and make a sowing of Egyptian or New Globe Beet for use during the winter and spring months. Select a rich and light soil, so that the plants may make quick growth. If the ground is in good condition, this batch will produce roots quite large enough for ordinary use, and they will be more tender than those from sowings made a month earlier.

Carrots.—A sowing may be made in light, rich soil, selecting the varieties Early Scarlet Horn, Early Gem, or Model. More than half the Carrot crop in these gardens is sown here after this date, with the result that a supply of tender roots is available throughout winter and spring. As soon as the plants are large enough, they should be thinned freely, so that the tops may not become drawn. The width allowed between the rows should be at least 15 inches.

Endive.—Endive sown a month ago will now be ready for thinning. The plants removed from the seed rows should be planted at distances of 1 foot apart on a cool, north border to come into use a fortnight later than the plants allowed to remain in the seedling rows. Make further small sowings for use in September.

Vegetable Marrows.—The plants should receive copious supplies of manure water while setting their fruits, and these latter should be cut for use while in a small state, for if they are allowed to remain on the plants until their skin becomes hard they will be of little value for cooking purposes. Avoid overcrowding by the removal of all worthless growth and old, decaying leaves. Fresh plantations may be made for late supplies in any part of the garden where the plants will be exposed to full sunshine.

Herbs.—All seedling herbs raised under glass should be planted in an open border. Marjoram may be planted in rows 15 in. apart, on a west border, where the soil is light and rich. These plants should be ready for potting-up in the early part of October, when they should be placed in a cold pit and kept as near the glass as possible, until frosts occur. It will then be necessary to remove them to a pit with a little heat. Sweet Basil may be planted in the same way for providing a summer supply, but, for winter use, it should be sown about the middle of August and pricked off as soon as large enough, putting four plants in a 6-inch pot. These may be grown through the winter in a Cucumber-house near to the glass. Thyme raised from seed may be planted on a south border at 1 foot apart. These young seedlings will pass through a rough winter better than plants two or three years old.

PLANTS UNDER GLASS.

By JOHN DONOGHUE, Gardener to JOSEPH PICKERSGILL, Esq.,
Bardon Hill, Weetwood, Yorkshire.

Bouvardia.—Bouvardias should now be repotted into their final pots, selecting them in sizes proportionate to the strength of the plants. As a rule, pots 4 to 5 inches in diameter are large enough for ordinary stock. Either a day or two before repotting, or a day or two after the operation is carried out, the plants may be transferred to a pit or frame, provided with good means of ventilation, and in such a structure they may remain during the summer season. They will need a little shade in bright sunshine, and should be sprayed overhead with clear

water in the afternoon, taking care to close the pit or frame sufficiently early to enclose a moderate amount of sunheat. The shoots should be pinched until the second week in July, but not afterwards. Place a neat, green stake through the centre of each plant, and carefully loop up the flowering shoots with thin raffiatape. When the flower-buds commence to form, occasional applications of some approved chemical fertiliser and waterings with clear soot water or diluted manure water from the farmyard will be beneficial.

Euphorbia (Poinsettia) pulcherrima.—This species grows so rapidly that young plants raised according to the instructions given in a previous calendar should not be allowed to suffer the slightest check from the roots being cramped. Considerable experience seems to show that this plant prefers soil which contains a moderate quantity of iron, and I would recommend that any soils lacking this ingredient will be improved if some iron filings are incorporated thoroughly with the compost used for the final potting. When the potting has been done, the plants should be kept in a close frame or shed until the roots are again active. After that stage they may be hardened in cool pits or frames, arranging



FIG. 194.—IXIA "LADY SLADE": FLOWERS, BRIGHT PINK.

the plants evenly on a base composed of ashes. Any overcrowding will cause the foliage to become weakly and bad in colour, and such leaves, falling from the plants, will rob them of their decorative value. A further batch of plants may be raised from cuttings inserted according to previous instructions.

Codiaeum (Croton).—Continue to insert cuttings of the best varieties of Codiaum. There is still time for such cuttings to attain a useful size before winter. Specimen plants which may have become leggy through loss of foliage at the base may be propagated by the "ringing" process. Each of the stems should be notched, or a little ring cut through the bark, and the portion so treated should be bound thickly round with moss, which should be kept moist at all times. After a few weeks, the stems will produce roots from the injured part, and when the moss is filled with these, the newly-rooted plants should be separated from the parent and potted up so as to become established before winter. Codiaums need an abundance of heat and sunlight in order that they may perfectly develop the brilliant colouring characteristic of the foliage.

Billbergia rhodoryanea (Echmea fasciata).—This interesting Bromeliad is well worth a place in the plant stove for its handsome foliage. Propagation may be effected by means of suckers obtained from the specimen plants during summer.

Ixia.—The Cape bulbous plants known as Ixias are very beautiful for conservatory or greenhouse decoration at this season of the year, and the flower-spikes are pretty in a cut state, the long stiff stems enabling them to be arranged to advantage. There are numerous varieties, one of the finest being that named after Lady Slade (see fig. 194) and having bright pink flowers.

THE FLOWER GARDEN.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

Hardy ornamental vines.—Few hardy climbers are more beautiful or effective than the species and varieties of Vitis. They are quick-growing plants, therefore can be used to cover various objects, such as arches, pergolas, old-tree stumps, or summer-houses. Many of them are particularly effective in autumn, owing to their brilliantly-coloured foliage. They are self-supporting, or nearly so; but at this season of the year, when growth is very quick, it is desirable to give them some little training, and take measures to make the growths secure against wind. They vary in habit greatly; some of them have bold, handsome foliage, suitable for covering large spaces, whilst others have very small leaves, and the plants themselves can easily be restricted to small areas. They usually succeed in ordinary soils; but, in common with plants of similar nature, they require copious supplies of water during dry weather in summer, whilst occasional syringings late in the afternoon serve to keep them clean. If the presence of insect pests make it necessary to use an insecticide, care must be taken to dilute it very considerably, or the young growths will suffer injury. In showery weather, a sprinkling of artificial manure over the soil will greatly stimulate growth. Some of the best for planting are Vitis armata and its variety Veitchii, V. Coignetiae, V. flexuosa and its varieties major and Wilsonii; V. Henryana, V. heterophylla, V. megalophylla, V. repens, V. Thomsonii, V. Thunbergii, varieties of V. vinifera, the "Grape vine," and V. hederacea, the "Virginian Creeper." If the plants are placed in sunny positions, the leaves will develop better colour in autumn.

Rubus.—The ornamental forms of Rubus are interesting, even when there are no flowers or fruit, and they continue every year to produce young growths of distinct and handsome appearance. They are suitable for the woodlands or pleasure grounds, also for covering fences or for grouping together in beds. R. deliciosus is one of the earliest to flower, and it forms either a neat shrub or a good specimen against a wall. Other species worth cultivation are R. bambusarum, R. biflorus, R. flagelliformis, R. fruticosus and its varieties; R. innominatus, R. laciniatus, R. Henryi, R. leucodermis, R. nutkanus, R. odoratus, R. phoenicolasius, R. hirtus, R. corchorifolius, and others.

Summer-flowering Chrysanthemums.—Most of these plants are now growing in their permanent quarters, but in some places, perhaps, a few late-rooted plants have still to be planted. This work should be done immediately. Those plants which are already planted should be afforded stakes, and the soil should be kept clean and well stirred with the hoe. In dry weather the plants will need waterings. Keep a sharp look-out for aphids, and syringe or dip any affected shoots in a weak insecticide. Plants of tall growth that do not show a natural tendency to produce side shoots should be pinched. Chrysanthemums deserve careful culture, as the flowers are indispensable in autumn. They may be interspersed with other plants in the mixed border, but are scarcely so effective in that manner as when they are grouped together in a border by themselves, and each plant neatly labelled. If this is done, it is desirable to plant three specimens of each variety, forming these into triangular groups.

Seedlings.—Any seedlings recently raised for spring bedding should be transplanted directly they can be handled.

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APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 28—Isle of Wight Rose Sh.

WEDNESDAY, JUNE 29—

Richmond Fl. Sh. Southampton Rose Sh. Roy. Soc. Ann. Meet., 4 p.m. Dartford Rose Sh.

THURSDAY, JUNE 30—Canterbury & Kent Rose Sh.

SATURDAY, JULY 2—

Sutton Rose Sh. Windsor, Eton, and District Rose Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—61.5°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 22 (6 P.M.): Max. 68°; Min. 55°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 23 (10 A.M.): Bar. 29.9; Temp. 66°; Weather—Sunshine.

PROVINCIALS.—Wednesday, June 22: Max. 65° Chelmsford; Min. 55° Scotland S.E. coast.

SALES FOR THE ENSUING WEEK.

FRIDAY—

Imported Cattleyas, received direct, also Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Botanical Nomenclature.

The principal work of the International Botanical Congress, which met at Brussels last month (May 14 to 22), was the completion of the Rules for Systematic Botanical Nomenclature and the consideration of the subject of Phytogeographical Nomenclature. At the Vienna Congress of 1905, when a code of rules based on the De Candolle laws of botanic nomenclature was formulated, commissions were appointed to consider special points relating to cellular cryptogams and palaeobotany. A series of recommendations arising from the reports of these commissions formed the subject for debate by the Section of Systematic Nomenclature at Brussels. The chief point to be decided was whether the nomenclature of the various groups of cellular cryptogams should start, as in the case of Seed-plants and Ferns, from 1753, the date of publication of Linnaeus's *Species Plantarum*, or whether later dates corresponding with important systematic works on the groups in question should be adopted as starting points. After some informal discussion among the workers on the various groups present at the Congress, it was decided to accept 1753 as the starting point in the case of the Mycetozoa, Algæ (excepting the Oödgoniaceæ and Nostocaceæ, to which later dates were assigned), Lichens, Hepatics, and Sphagnaceæ. In the case of the Fungi, it was agreed to start from Fries' *Systema Mycologicum*, 1821-32, except for the Uredineæ, Ustilagineæ, and Gastromycetes, for which Persoon's *Synopsis*, 1801, was adopted as the starting point. For mosses, Hedwig's *Species Muscorum*, 1801,

was agreed upon. In order to avoid, as much as possible, changes of name which would arise from adhering to the principle of priority, especially where so early a date as 1753 was adopted, special committees were appointed to draw up lists of *nomina conservanda*, that is, generic names which are to be retained because they are generally recognised, and have the advantage of long-established usage, but are not admissible on grounds of strict priority. These lists will be prepared and put before the next Congress of 1915, which it was decided to hold in London.

The question of the nomenclature of pleomorphic fungi was also discussed. As is well known, many fungi which pass through successive states bear names for each state, these having been often known apart without the connection between them having been recognised. Such, for instance, is the common Wheat-rust (*Puccinia graminis*), which, in an alternative state of existence, lives on leaves of Barberry and was described as a distinct species, *Æcidium Berberidis*. It was agreed that henceforth these fungi should be known by one name only, the earliest given to the "perfect state," provided such name conformed to the rules. The perfect state is that which produces the ascus, the basidium, the teleutospore, and the spore in the respective groups Ascomycetes, Basidiomycetes, Uredineæ, and Ustilagineæ. Thus the Wheat-rust will bear throughout its different stages the same name, *Puccinia graminis*. A useful recommendation to workers on fungi was the addition of figures, including microscopical details, when describing new genera or species.

A matter of importance to palaeobotanists was the formulation of a rule to avoid the use of the same name for living and fossil plants. For general guidance, a double list of *nomina conservanda* is to be compiled, including in the first those names of genera of living plants which clash with earlier names of fossil genera, e.g., *Bucklandia*—the name of the living plant takes precedence here—and, in the second, those names of genera of fossil plants which have also been used for living plants, but are now relegated to synonymy; these names cannot be restored for the living plant.

Some discussion seemed likely on the proposal to modify the list of *nomina conservanda* accepted at Vienna for Seed-plants with a view to avoid as far as possible changes of names from the strict application of the rule of priority. The list contains a large number of names of genera, which have been in general use for many years, but which are inadmissible on grounds of strict priority. It is, however, not a complete list, and botanists working according to the rules since 1905 have, in several cases, been bound to make a change of name; these changes have been recognised as necessary. An additional list had been prepared which some workers wished to see embodied in the original list—this would have necessitated in certain cases the upsetting again of changes which had already been accepted, though in other cases, such as the genus *Persea*, the insertion of the name in the list would have prevented the unwelcome change of name of a large number of species. It was ultimately decided to accept the new list with the exclusion of those names which had already been the subject of change since 1905.

The section of Phytogeographical Nomenclature had before them for discussion a series of recommendations drawn up by Prof. Flahault, of Montpellier, and Prof. Schroeter, of Zurich, the reporters to the commission which was appointed at Vienna to consider the subject of plant-geography. These recommendations arose from the consideration of a number of documents and suggestions which had been forwarded by various eminent plant-geographers. There was considerable diversity of opinion on the various aspects of the subject, but it was generally felt that the Congress could not pass rules, but should merely put forward recommendations for the guidance of workers. The following were agreed to without opposition:—(1) That every author should explain exactly what he understands by the terms he uses. (2) That the popular names of units of vegetation in the various languages should be retained. (3) That the principle of priority in phytogeographical terminology is inadmissible. (4) That a polyglot, synonymic dictionary of phytogeographical names should be compiled by a special commission. (5) That the colour scheme suggested by Prof. Engler for maps of tropical vegetation be recommended for adoption. (6) That Ecological Phytogeography may be defined as the study of the relationships of plants and plant-communities with the environment.

Before and during the Congress herborisations and other expeditions were arranged by the Brussels Committee; these included a visit to the fine new Colonial Museum at Tervuren, the University of Liège, and Antwerp.

OUR SUPPLEMENTARY ILLUSTRATION.—

Corypha umbraculifera, the Talipot Palm, is a native of Ceylon and S. India, and it forms one of the noblest specimens of the vegetation of those regions. Though, like the majority of its allies, it is a slow grower, it attains to a great height, and, when reaching maturity, bears a magnificent crown of enormous leaves. So large are the full-grown leaves, that one or two suffice for the roof of a hut. Indeed, it is no uncommon sight in Ceylon to see a whole family of Tamils marching along in a tropical shower sheltered beneath a single leaf, which serves them as an improvised and gigantic umbrella. Though the Talipot reaches a height of some 90 or 100 feet, it is a monocarpic—that is, a once-flowering plant. For 70 or more years its energies are devoted to building up its massive tissues. Then, bursting into bloom, it forms a splendid spectacle, which attracts curious visitors from far and wide. Its bloom faded and its fruits set, the whole inflorescences topple over, the leaves wither and hang down, and the tree dies. The three photographs reproduced in the illustration represent the youth, maturity, and old age of this remarkable Palm. The cultivation of the species in Europe is attended with considerable difficulty, and at Kew it has never been possible to get specimens of even a moderate size. The present plants are only about 3 feet or so in height, but these are probably equal to any to be found in Europe.

THE FREAM MEMORIAL PRIZE.—The Board of Agriculture and Fisheries have awarded a Fream Memorial Prize of the value of £7 1s. 9d. to Mr. JAMES BERNARD GARNETT, Brampton-en-le-Morthen, Rotherham, a student at Leeds University, who obtained the highest marks at the examination held in April last for the National Diploma in Agriculture.

FLOWERS IN SEASON.—From Messrs. KELWAY & SON we have received a few specimen flowers of the choicer varieties of *Pyrethrum roseum*. These include Langport Scarlet and General French, both having single, crimson flowers; Evelyn, a double pink flower, with whitish centre, of very excellent form; Lord Milner, single flower, colour rose-pink; Souce, a large, double white flower; Snowwhite; Goring Thomas, a single flower, pink; Queen of the Whites, single; and Lord Rosebery, a large, double flower of purplish colour. If *Pyrethrums* are given liberal cultivation they are amongst the showiest flowers in the border during June, whilst the blooms have great decorative value in a cut state.

CHANGES IN THE L.C.C. PARKS.—Mr. J. W. MOORMAN, the superintendent of Victoria Park, relinquishes his position on June 30, his retirement on pension being in accordance with the Council's rules as to age limit. It is expected that Mr. D. CARSON, of Southwark Park, will succeed to the vacancy, in which case he will be promoted from second to first-class superintendent, and that Mr. F. W. WRIGHT, chief of the Thames Embankment gardens, will succeed Mr. CARSON as superintendent of Southwark Park. Mr. G. WARREN, at present in charge of Ruskin Park, will probably be offered the post vacated by Mr. WRIGHT.

YORKSHIRE GALA.—The attendance on the opening day constituted a record, the number of persons who passed the turnstiles being 11,281, against 10,311 last year, and 11,171 on the occasion of the previous record three years since, increases of 970 and 110 respectively. The receipts totalled £620 2s. The attendance on Thursday was 27,349, an increase of 127 compared with last year. But despite the continued favourable weather, the attendance and receipts on Friday both showed a falling off compared with those of the third day last year. The number of tickets sold was 9,653, or 626 fewer than the corresponding total in 1909, and the receipts were £234 17s. 9d., or £15 0s. 3d. less than on the concluding day 12 months ago. This year's totals have been excelled 12 times as regards attendance and on eight occasions as regards receipts. In our report last week of the non-competitive exhibits we omitted to mention the fine display of Orchids put up by Messrs. CHARLESWORTH & Co., Haywards Heath. It consisted principally of choice *Lælio-Cattleyas*. Messrs. KELWAY & SON inform us that a Silver-gilt Medal was awarded for their exhibit of hardy flowers and Sweet Peas, and not a Silver Medal, as given in the list of Awards furnished us by the secretary.

MR. H. W. WARD.—We regret to hear that our valued correspondent, Mr. H. W. WARD, of Rayleigh, Essex, has sustained a bereavement in the unexpected death of his elder son in Johannesburg in his 34th year. Mr. A. H. WARD, who lived at Cape Town, was the esteemed manager of the South African Branch of the Northern Assurance Co., in whose service he had been engaged for 18 years.

THE BRENT VALLEY BIRD SANCTUARY.—The Selborne Society has issued the third of a series of leaflets on the Brent Valley Bird Sanctuary. This deals with curious nesting-places, and, like those previously issued, is profusely illustrated, having been reprinted from *The Country Home*. Copies of the leaflet may be obtained from Mr. WILFRED MARK WEBB, Honorary Secretary of the Selborne Society, at 42, Bloomsbury Square, W.C., post free, for three halfpenny stamps.

TRENTHAM AS A PUBLIC RESORT.—The Duke and Duchess of SUTHERLAND have decided to throw open to the public the gardens at Trentham Hall, Staffordshire. They were opened for the first time on the 16th inst., and a charge of sixpence was made for each visitor. Those who knew Trentham in the days of FLEMING and STEVENS would find a great difference in the place to-day, for not only are the collections of plants more or less distributed, but the famous statuary has been removed, excepting the large work of BENVENUTO CELLINI. At the same time, Trentham has still many irresistible charms, and Mr. PETER BLAIR had everything very attractive on the opening day.

A RHODODENDRON SHOW.—The annual display of Rhododendrons, made by Messrs. J. WATERER & SONS, Bagshot, in the Botanic Gardens, Regent's Park, is an institution of considerable horticultural importance. The plants are dug up from the nursery in April and conveyed by rail to Regent's Park, where they are replanted in beds and borders and tended until the flowers expand, when the whole are covered with two large marquees, open at the ends and sides, thus providing conditions that are favourable to the flowers and make their inspection convenient and agreeable in all kinds of weather. It is much more satisfactory to see the plants in flower set out as they would appear in the garden than the choke-muddle arrangements at ordinary flower shows, and we recommend this method to nurserymen in a position to afford it as one that is likely to attract gardeners and others who wish to see together a selection of the best, from which they can make their own choice. It may be that Rhododendrons lend themselves to exhibitions of this kind better than most plants; they certainly look quite at home in the tents in the Botanic Gardens, and they are returned to Bagshot but little the worse for the outing. That the every-day gardener does not know the best Rhododendrons is abundantly evident in the poor quality of the varieties that are usually to be seen. There is as much difference between these latter and the best of the modern seedlings as there is between the old garden Roses and the new. Needless to say, there are no indifferent sorts among the many shown by Messrs. WATERER. As to which are the best, the choice would depend on one's colour preferences. We liked the following on account of their richness or delicacy of colour, their fulness of truss and the good habit of the plant: Gomer Waterer, Lady C. Walsh, Dorothy Fortesque, Mum, Viscount Powerscourt, John Walter, Kate Waterer, Mrs. John Penn, Mme. Carvello, Mrs. Tritton, Lady Hillingdon, John H. Agnew, W. E. Gladstone, and Pink Pearl.

COMMITTEE ON AGRICULTURAL SCIENCE.—The President of the Board of Agriculture and Fisheries has appointed a committee to advise the Board on all scientific questions bearing directly on the improvement of agriculture, and especially as to the methods to be adopted (a) for promoting agricultural research in universities and other scientific schools; (b) for aiding scientific workers engaged in the study of agricultural problems; and (c) for insuring that new scientific discoveries are utilised for the benefit of agriculturists. The committee will consist of his grace the Duke of DEVONSHIRE, P.C.; the Rt. Hon. Lord REAX, G.C.S.I., G.C.I.E.; Sir EDWARD THORPE, C.B., F.R.S., Mr. DAVID DAVIES, M.P., Dr. J. J. DOBBIE, F.R.S. (principal of the Government laboratories), Professor J. B. FARMER, F.R.S., Dr. S. F. HARMER, F.R.S. (Keeper of Zoology at the Natural History Museum), Dr. R. STEWART McDougall, M.A.

(Technical Advisor in Zoology to the Board of Agriculture and Fisheries), Mr. T. H. MIDDLETON, M.A., M.Sc. (one of the assistant secretaries to the Board of Agriculture and Fisheries), Mr. SPENCER PICKERING, F.R.S., Lieut.-Col. DAVID PRAIN, C.I.E., F.R.S. (director of the Royal Botanic Gardens, Kew), Mr. H. S. STAVELEY-HILL, M.P., Mr. STEWART STOCKMAN, M.R.C.V.S. (chief veterinary officer of the Board of Agriculture and Fisheries), Dr. J. J. H. TEALL, F.R.S. (director of the Geological Survey and Museum), and Dr. DAVID WILSON, M.A. Mr. MIDDLETON will act as chairman of the committee, and one of the officers of the Intelligence Division of the Board will act as secretary.

ROTHAMSTED EXPERIMENTAL STATION.—A meeting of the society for extending the Rothamsted experiments was held at Rothamsted on June 16, under the presidency of the Duke of DEVONSHIRE. The society has been incorporated with the object of obtaining additional funds for the development of the agricultural investigations which have been carried on so long under the late Sir JOHN LAWES and the Lawes Agricultural Trust which he afterwards founded. The immediate object of the society is to obtain a sum of £5,000, in order to secure about 200 acres of land adjoining the present experimental fields, and erect thereon the buildings required for feeding experiments with the crops under investigation. An appeal for subscriptions towards thus securing a small, self-contained farm for the Rothamsted Experimental Station is now being circulated, and, at a recent meeting of the society, a first list of donations was reported from the Duke of DEVONSHIRE, Lord IVEAGH, Sir J. T. BRUNNER, Col. E. H. CARLILE, M.P., Mr. J. F. MASON, M.P., and Mr. J. MARTIN WHITE, amounting to £1,450.

ORDNANCE SURVEYS AND SALARIES.—The President of the Board of Agriculture and Fisheries has appointed a Departmental Committee to enquire into the pay and classification of the civil assistants, temporary civil assistants and labourers employed on the Ordnance Survey, and to report whether, having regard to the conditions of their employment and to the rates current in analogous occupations, their remuneration is adequate. The committee will be constituted as follows:—The Rt. Hon. Sir WALTER FOSTER (chairman), G. L. BARSTOW, Esq. (a principal clerk in the Treasury), Col. J. W. GREIG, M.P., GEO. D. KELLEY, Esq., and F. NEWMAN ROGERS, Esq. Major W. C. HEDLEY, R.E., of the Ordnance Survey, will act as secretary.

"LA VIE A LA CAMPAGNE."—This excellent publication has recently devoted considerable attention to gardening. Its special spring number, published on March 15, was entitled "Four Centuries of French Gardens," the principal writers being MM. ALBERT MAUMENÉ, ACHILLE DUCHÈNE and GEORGES GIBAUT. The work was very freely illustrated; among the many pictures and reproductions from old garden books were views of gardens in the Middle Ages, plans, parterres, views of the Maison de Seceaux, Versailles, Chantilly, &c., and a full-page portrait of Louis XIV., a great patron of horticulture. The literary matter was varied and interesting. More recently the issue of May 15 was devoted to the subject of how to get up a horticultural show. Portraits of the contributors and of the members of the jury of the Paris Spring Show were given. Many views of shows and different exhibits occupied a large portion of the issue, to illustrate articles by such eminent authorities as MM. P. DE VILMORIN, J. MOSER, L. CHAURÉ, D. BOIS, A. TRUFFAUT, ABEL CHATENAY, JULES VACHEROT, GAB. DEBRIE and about a dozen other distinguished French horticulturists.

FLORAL PICTURES.—During the next two weeks a small collection of water-colour paintings and decorative panel pictures on silk may be seen at COLDRUM'S, Sloane Street. The paintings are by Mrs. HARTRICK, R.S.W. (LILY BLATHERWICK), who exhibits them, and they number 45. With the exception of *Cypripedium grande* (*Selenipedium grande*), *C. Godefroyæ*, *Oncidium Papilio*, and *O. leucochilum*, which are faithfully drawn and coloured, the remainder consist of out-of-door flowers. Although the treatment is somewhat that of the impressionist, the different subjects are readily recognisable, and the impression of truth that they convey is deepened by their tender colouring. Over, and around all of them, there rests a delicate mistiness that is not unpleasing, indeed it is distinctly gratifying in "Red Poppies," "Oriental Poppies," "Winter Cherry," and "Sweet Peas." The subjects which pleased us most were Iceland Poppies, Christmas Roses, *Wistaria* (of this two panels were shown), Cornflowers, some Shirley Poppies (at dawn), and a hedge sparrow's nest containing four eggs, the design being accompanied by some blooms of Japanese Anemones. The subjects chosen for panels were prettily suggestive of the uses of such things in decorative art.

TWO NEW DISEASES OF GOOSEBERRIES.—

In the *Annales Mycologici* (vol. viii., No. 2, 1910) Messrs. BROOKS and BARTLETT give an account of their investigations into the nature and causes of two diseases of Gooseberries which have killed off large numbers of bushes in the fruit-growing districts in Cambridgeshire. The heaviest-cropping kinds, such as Whinham's Industry and Keepsake, are most frequently attacked, and as many as 20 per cent. of the bushes are affected in some plantations. The general characters of the two diseases are very similar. Evidence of the attacks are most obvious in spring and early summer. The leaves wilt and soon turn brown, and the branches bearing them die very rapidly; in bad cases the whole bush is killed somewhat suddenly. One of the diseases has been shown to be due to the common fungus, *Botrytis cinerea*, the conidiophores of which are found breaking through the bark of dead branches in spring. The authors were able to produce the disease by inoculating branches with the young mycelium of the fungus. They conclude that the parasite gains an entrance into its host at the ends of young shoots which have been damaged by frost or by aphides. The second disease closely resembles that produced by *Botrytis cinerea*, but is apparently caused by *Cytosporina Ribis*, a species which has been considered hitherto a saprophyte and only able to live on dead wood. Further investigations are being made with this fungus. In regard to remedial measures, Messrs. BROOKS and BARTLETT recommend the immediate destruction by fire of all affected bushes as soon as the disease is discovered, so that the formation of the sclerotia of the fungus and the subsequent distribution of the conidia may be prevented. The present practice of leaving dead and dying bushes in the plantations for some time ensures the continuance and propagation of the disease. Something might be done to check the influence of aphids by suitable spraying.

THE BERLIN BOTANICAL GARDEN.—Many of those who were present at the International Botanical Congress at Brussels accepted an invitation to Berlin from the Director of the Royal Botanic Museum and Garden, to visit the new botanical establishment at Dahlem. (An account of the Garden, with some illustrations, appeared in the *Gardeners' Chronicle* in 1908 and 1909.) It was

most interesting to explore the gardens and houses under the guidance of Prof. ENGLER, the Director, with the help of Prof. URBAN, the Assistant Director, and other members of the staff. The whole establishment is a model of scientific organisation for educational purposes. Perhaps the most impressive object to a visitor for the first time are the miniature mountain ranges, representing the Alps, Pyrenees, Himalayas and others, with characteristic plants, some of which have become very much at home. Another feature is the large phytogeographical section, admirably planned, but to the outsider suggestive of an enormous amount of industry and care if the different geographic areas are to retain their special characteristics. The museum contains a large herbarium, which is specially rich in plants of tropical Africa, a lecture theatre and workrooms, and a series of exhibition galleries illustrating systematic botany, plant-geography, biology, palæobotany, economic botany, and the products of the German colonies. A visit was also arranged to Potsdam and Sans Souci, where the guests were conducted round the royal park and gardens by Director F. INTELMMANN.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

"PANSIES, VIOLAS, AND VIOLETS" (see p. 399).—I have read the review of this book by Mr. W. Watson in last week's *Gardeners' Chronicle* with some interest, having recently been engaged upon a literary and historical research in connection with the Pansy, the result of which will be found in *La Tribune Horticole* of Brussels for January 1 last. Mr. Watson, quoting from Philip Miller, seems to consider that the word spot is identical with blotch, and concludes by saying that Thompson's statement that nothing in the way of blotches on the flower had been secured before 1830 must be an error. I am going to use another term for the purpose of differentiation, and will say that "dabs" of colour, either on the upper petals or the lower, do not constitute a blotch. That is to say, a blotch, as understood by the old florists, when referring to that peculiarity in a show Pansy. As I understand the term, the blotch is that marking in a Pansy immediately round the eye, and must be as nearly circular as possible. It is confined to the three lower petals, and although some varieties of the old Pansies had dabs of colour elsewhere, which might, by some persons, be described as blotches, they are not blotches in the vocabulary of the Pansy fanciers. Thompson, of Iver, was certainly the father of the modern Pansy. He had, of course, contemporary workers, but I think he knew what he was talking about when he said that nothing in the way of blotches had been secured before 1830. Neither Philip Miller nor any man of his day and generation ever saw a blotched Pansy, for the excellent reason that this peculiar marking had not been evolved by the florist. *Viola tricolor* is rayed, and not blotched, and that was the species mostly known in his day. If we turn to Professor Wittrock's coloured illustrations accompanying his *Contribution to the History of the Pansy* (Stockholm, 1896), we find no blotched flowers in his figures of *V. tricolor*, *V. arvensis*, *V. latsepala*, *V. cornuta*, *V. calcarata*, *V. lutea*, or *V. norvegica*; they are all rayed, but in a few cases there are some whose upper petals have what I prefer to call dabs of colour on them. And so the early and improved forms of the florists' Pansy were marked by these fine pencillings or rays on the lower petals. The *Floricultural Cabinet*, first published at a time when the Pansy was a popular show flower, gives many figures of these early seedling varieties. There is no suspicion of a blotch in many of them. The same may be said of those figured in Westley's *Horticultural Journal and Florists' Register*. There are some pretty varieties, but all with rayed centres. What I take to be the elementary form of a blotch appears in a variety Sir Francis Burdett (1837). If we

turn to Sinclair and Freeman's work on the Pansy, containing 24 coloured figures of the choicest sorts (1835), many of them being Thompson's seedlings, we find even then that the majority are rayed and not blotched, or, to be exact, eight are blotched, or partly so, the others distinctly rayed. It is evident that the Pansy raiser had one great object in view, and that was, by culture, to drive these rays or pencillings into a solid blotch of colour round the eye. In the *Florists' Museum* (1836) we find an early instance in Count de Sellis, in the description of which it says, "The pencilling on the three lower petals is condensed into a very remarkably rich spot." And in another place, "The colours should be brilliant and clear, and the eye of the flower small and neat, and the pencilling is most esteemed when in the form of a spot at its base." This spot is technically the blotch, and any other spots of colour elsewhere are not blotches in the sense intended by Thompson, and to which Mr. W. Watson takes exception. C. Harman Payne.

NOVELTIES AT THE CARNATION SHOW.—I

saw the Carnation Show on June 9 as a grower who is more interested in what is to come than in what we know to be. Empire Day, the seedling shown by Mr. A. Smith, who gave us Britannia, attracted the most attention. It won the premier award as the best vase of flowers in the show, as well as chief honours in the classes for pink flowers. Those who know it as a growing plant can testify to its good qualities better than those who have only seen the cut bloom, but Mr. Smith has no intention of distributing his variety at present, perhaps not for years! Mr. Waters showed a large-flowered cerise seedling named Miss Alice Waters, and if this variety is equally good in winter it should have a future. Mr. Engelmann had hundreds of blooms of his crimson seedling, Carola. Messrs. Stuart Low & Co. had several dozen blooms of Princess Juliana, their orange-coloured Perpetual Malmaison, which is a decided break. Roseate Dawn, a novelty from the same firm, lacks size, but it has a perfect shade of old rose colour and other good qualities. Mr. Burnett had his pale pink seedling, Countess of March, in good condition. The colour and build of this variety is good, the size again not being large, if indeed this is any disadvantage. Of course there were many more novelties shown, but from a purely market grower's point of view these constitute the choicer ones. The American novelties, with two exceptions, were shown in small numbers. Pink Delight was represented by a very fine vase, but those who are familiar with its thin, shy habit realise that even this cannot atone for its shortcomings, and whilst May Day was not largely shown, those who know it have nothing but praise for its exceptional qualities. Some day all will grow this beautiful, free-flowering, pink variety, with its somewhat small, refined flowers. Bay State was shown well, and if I thought it would yield such quality of bloom in the dull month of December I should wax eloquent in its praise, but I cannot forget past experience. Ruby was represented by several excellent blooms in various parts of the hall. I am sure it is a descendant of the old variety, Harry Fenn, and inherits the bad, winter qualities of its parent, but its autumn and spring bloom may win for it a place in many collections. O. P. Bassett, the scarlet American novelty, has some votaries, and several good blooms were shown, but I am afraid our dull winters will never suit this variety. A Market Grower.

SNAKE AND THRUSH.—An interesting incident

was witnessed in these gardens a few days ago. A nest of fully-fledged thrushes was disturbed and one of the brood, in its flight just over and near to some long grass, was seized by a large common snake which was basking in the sun and grass. The snake suddenly threw up its head above the long grass and seized the bird in its mouth, carrying it across a ten-foot gravel path into some more long grass, the snake keeping its head erect with the bird in its mouth and wriggling along quite easily and rapidly. Curiosity tempted me to follow quietly and watch the result. The snake made a hole in the neck of the bird, sucked its blood, and thus killed it. The snake then beat a retreat, and was allowed to do so, being recognized in other ways as the gardener's friend. W. Crump, Madresfield Court Gardens.

EXHIBITION VEGETABLES.—I was interested to read *Practical's* reply, on p. 409. If he is so much concerned about the expense caused by what he calls artificial treatment (I should like to know where this commences and where it ends), why does he not attack the intensive or French system of gardening? This is certainly artificial; the outlay is enormous, yet this is done with a view of making large profits. Unless *Practical* be opposed to horticultural shows altogether, perhaps he will tell us how and on what lines vegetables should be grown and exhibited. I agree entirely with every word *A. D.* says in regard to the production of vegetables. The finest and best Cauliflowers and Broccoli are produced in the market-gardens, and under what may be generally termed good cultivation. The same applies to Potatoes on soil which are suitable for their production. The very best tubers possible may be produced by ordinary field cultivation, it being merely a matter of selection. When *Practical* talks about Cauliflowers, planted 4 feet apart, mounted about the stems with manure and watered daily, he must, I think, be more imaginative than real; certainly such treatment is the exception rather than the rule, as I have never practised and never known such a case, and my experience is fairly wide. In relation to Runner Beans. I am prepared to prove that these, planted from 10 to 15 inches apart, will produce much heavier crops and finer quality than those grown in what he would call the ordinary way. *Practical* runs away from his argument in his previous article on Brussels Sprouts, and falls back on Onions, Celery, Runner Beans, Leeks, and Peas. Now every one of these mentioned can hardly be grown too large, providing, of course, the produce possesses high-class quality. So it is with a few other vegetables, for instance, Asparagus. If *Practical* will take the trouble during the season to enquire the price at the leading greengrocers' shops, he will find that a bundle of the largest and best English-grown Asparagus will fetch five or six times as much as the same number of heads of smaller growth. And the same applies to large, well-grown Onions, Celery, Beans, Peas, &c.; but what about many other kinds of vegetables? I am old enough to remember when mere size did count at the vegetable shows, large size in Marrows, Turnips, Cucumbers, Carrots, Beetroot, Cabbage, Brussels Sprouts, Savoy, Broccoli, Cauliflowers, Potatoes, and many others. Now, what do we see? At all the leading exhibitions, refinement and high quality are the points given the first consideration. *Practical* need have no fear for the gardener who exhibits high-class vegetables. Though I know there are many men that cultivate good vegetables, but never exhibit, nevertheless the exhibitor can and does supply the table at home with high-class produce. It is only fair that the man who exhibits should be judged by his employer, and no one is more capable to do this, by the standard on which he cultivates not only the kitchen garden, but the various branches which come under his control. Until recent years, vegetable culture lacked much, and I am confident that nothing has done so much to raise this important branch of horticulture as the cottage garden and other horticultural exhibitions throughout the length and breadth of the country. Not only is there emulation amongst professional gardeners, but among amateurs and cottagers also. *Exhibitor No. 2.*

—Why does not *Practical* answer my question relating to the cottagers' class. If exhibition culture is such an expensive pleasure, why do cottagers indulge in it so freely? I have every good reason to believe (being a member of the committee of a very promising horticultural society and having enquired of other societies) that the cottager will be more in evidence in the future at all the leading exhibitions. With regard to glass tubes and miniature boxes, can *Practical* state where these are used, as I should be very interested to see them? In any case they are not necessary for the production of exhibition Leeks. I should also like to know who the manufacturer is. He certainly cannot be a very enterprising tradesman, otherwise we should have seen his advertisement in the *Gardeners' Chronicle*. I was surprised to read *Practical's* criticism of *A. D.*, as I consider that the latter is one of the most able judges, with a practical experience. With respect to *Practical's* remark on Runner Beans,

I may say that 12 to 15 inches is quite an ordinary distance apart to plant, as by this method better results are obtained than by planting 4 inches apart, for you only want one-third the quantity of seed and you gain more and better-quality Beans, with less expense for sticks. I think this should prove to *Practical* that *A. D.'s* advice was both practical and economical. *A. Gooding, Earham House Gardens, Chichester.*

CULTURE OF RHODODENDRONS.—We have a considerable collection of Rhododendrons at this place, including varieties of the Himalayan species. Amongst the older plants, some of the varieties of *R. arboreum* have grown to 30 feet or more in height. These seem to be thoroughly established, and take good care of themselves. We have, however, some difficulty with the younger plants. The soil is in most cases shallow and inclined to be sour. Where it is deep, it is almost pure peat, and although *R. ponticum* and some of the coarser hybrids seem to thrive luxuriantly in this, the Himalayan species do not succeed in it as well as could be desired. I should be grateful for any information as to the cultivation of *R. arboreum*, and such types as *R. barbatum*, *Rozlii*, *Aucklandii*, *grande*, *Falconeri*, *Thompsonii*, &c., under the



FIG 195.—*RANUNCULUS* "EVENING STAR":
FLOWER YELLOW.
(See note on p. 391.)

conditions which I describe, and particularly as to the possibility of rendering a black and retentive peaty soil, recently reclaimed, more suitable for the growth of Rhododendrons of the above class. We have abundance of seaweed manure. Can any of your correspondents tell me whether this can be successfully used, or whether it is likely to be harmful? I should also be glad to know whether, when the young plants show a tendency to produce a very heavy crop of blooms, it is desirable to pick off the young buds before the flowers have opened, and, if so, at what stage? *W., Kenmare, Ireland.* [It is always advisable to disbud young plants of Rhododendrons that are too prolific. The best time to remove the buds is early spring before they start to unfold.—Eds.]

SPRING IN THE EASTERN COUNTIES.—A very interesting article having appeared on spring flowers in the south-western parts of England (see p. 341), it has occurred to a resident in Suffolk that there perhaps might be some value in a similar one written on the less varied flora of the Eastern Counties, and specially as regards the cultivation of Alpine plants in that locality. Our winter was unusually wet, and it

was not till the middle of February that we first saw the little white bells showing between the sharp points of the Snowdrop leaves, then the yellow Aconite with its green ruff growing in considerable numbers on the sides of our moat, followed by an occasional Crocus. We had not much more till the middle of March, till one joyous day I found a bud of *Soldanella alpina* peeping from among its large, heart-shaped leaves on the rockery; it developed fast, having once begun, and before the end of March I had 13 or 14 beautiful flowers on one root and a few single flowers on seedlings. It was followed quickly by *Chionodoxa Lucilæ*, which came up all over the rockery, as did a variety of *Aubrietia*, the double red *Hepatica*, *Primula rosea*, *Arabis alpina*, a blue *Primrose*, *Dryas octopetala*, and the courageous little *Ionopodium*, which flowered all through the winter, sometimes covered with snow and sometimes not. On April 6 glorious rows and sheets of Daffodils began to show, and the grass of the lawns was covered with *Crocuses*, *Scilla sibirica*, *Hyacinths* and *Tulips*, and a glorious line of scarlet *Anemones* appeared. On the rocks we had a variety of *Primroses* and *Saxifragas*, and the lovely *Gentiana verna* appeared in great beauty, followed in a few days by *Gentiana acaulis*, which was covered with bloom and lasted in full glory for nearly three weeks. On May 20 they began to fade, but other flowers were out—*Veronica rosea*, *Wahlenbergia*, *Saxifraga hypnoides* (which is rather difficult to keep in bounds), *S. aizoon*, *S. aizoon minor*, *S. sarmentosa*, *Androsaces*, *Cytisus Ardoinii*, and *Arenaria balearica*. The *Auriculas* which came out in April were then going off, but a great bed of *Wulfenia carinthiaca* at the top of one of the mounds was covered with purple spikes; *Cistus florentinus* produced its flowers of a day, *Phlox Little Gem* came out, and *Erysimum pulchellum*. Many of these are over, but the *Saxifragas* are still in the fullest flower, and in addition we now have a plant of *Ramondia pyrenaica* with 13 flowers, two beautiful specimens of *Calceolaria plantaginea* in full bloom, the amusing little *Bellis minutus*, *Lithospermum prostratum*, and *Cyclamen europæum*. A flower or two of the fine *Dianthus alpinus* is starting, and near it the pale, delicate, little Cheddar-pink and the curious *Chrysosplenium oppositifolium*. The wall garden is covered with Ivy-leaved Toad-flax and the little *Dianthus prolifera*, and the hedgerows are lovely with *Roses*, blue *Speedwell*, and pink *Lychnis*. So far as the Alpine garden is concerned, I am the humblest of amateurs, but I started mine 18 months ago with four tons of sandstone from Messrs. Pulham & Co., a small quantity of peat and ordinary garden soil. The only plant I cannot manage to keep is *Silene acaulis*. I wish someone would advise me on this point. I had six plants last spring, which all flowered well; only one lived through the winter. I had six more, but one has suddenly withered, and there is no appearance of flowering in any of them. *Silene Schaffa* flowered last summer perfectly, and seems inclined to do so again, and *Gentiana septemfida* and *G. asclepiadea* also look most promising. The taste for rock-gardening is much on the increase, and the plants appear to like the air and the soil of the Eastern Counties. *A. Grant Duff.*

OAKS DYING.—During at least 30 years the leaves of Oak trees in the coverts here have been eaten annually in June by a caterpillar. The woods have now the tint of April, and I enclose a specimen of a small branch. All the Oaks—some thousands—are beginning to die, and this year the trees, under fifty years old, are attacked. Is this plight at all widespread, and are all the Oaks in England doomed to gradual extinction? *Basil Levett, Wychnor Park, Burton-on-Trent.*

VINE AFFECTED BY LIGHTNING.—Has any reader knowledge of a similar case to the following? A vine in this locality was, to all appearances, quite healthy up to a few weeks ago, but since a rather severe thunderstorm occurred, with vivid lightning, it has died away. A trained Plum tree on a wall a few yards from the vine has one large branch similarly affected, and it has occurred to me that the trouble may be due to the lightning. The vine is at the extreme end of a lean-to vineyard facing due south. *H. A. Coleman, Wolverhampton.* [We should rather suspect root trouble than the lightning.—Eds.]

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 21.—Another beautiful floral display was seen at the meeting, held on Tuesday last, in the Society's Hall, Westminster. The weather was fine, and a large number of visitors attended the exhibition, although they were not so numerous as to cause crowding. There was a great array of hardy flowers, including Pæonies, Delphiniums, Lilies, and other border subjects shown in large groups; there were also important exhibits of Roses, Carnations, Sweet Peas and greenhouse flowering and foliage plants. The FLORAL COMMITTEE had many novelties submitted for award, and this body granted six Awards of Merit.

There were fewer Orchids than usual, and only one Award of Merit was granted by the ORCHID COMMITTEE.

The FRUIT AND VEGETABLE COMMITTEE gave an Award of Merit to a new Strawberry; the chief groups consisted of displays of pot fruit trees.

At the three o'clock meeting in the lecture room papers by Mr. W. Cuthbertson and Mr. Jas. Grieve on "Fifty Years among Pansies and Violas" were read by the former gentleman.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. Henry B. May, A. Kingsmill, Chas. T. Druery, G. Reuthe, W. B. Cranfield, Jas. Douglas, Jno. Jennings, W. Cuthbertson, Ed. Mawley, Chas. E. Shea, Chas. E. Pearson, E. H. Jenkins, W. J. James, Geo. Paul, J. W. Barr, R. C. Notcutt, George Gordon, James Hudson, Walter T. Ware, F. Page Roberts (Rev.), R. W. Wallace, E. T. Cook, Chas. Blick, Charles Dixon, and R. Hooper Pearson.

Mr. L. R. RUSSELL, Richmond, exhibited an imposing collection of choice stove and greenhouse plants, the plants being remarkably well grown. There were richly-coloured *Codæums* (*Crotons*), *Caladiums*, *Anthurium Veitchianum*, *A. regale* (very fine), *Dracæna Sanderiana*, *Ananassa variegata* (a beautiful example of this coloured-leaved Pineapple), *Maranta regalis*, *M. insignis*, *Alocasia argyrea*, *Cyanophyllum magnificum*, plants of *Gloriosa Rothschildiana* at intervals and a well-pitched *Nepenthes* on a tall stand. (Silver-Gilt Flora Medal.)

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, again made a fine display with miscellaneous flowering plants. The *Cannas* were excellent, especially the varieties *rosea gigantea* and *J. B. van der Schoot* (bright red spots on clear yellow). The blue-flowered *Solanum Wendlandii* was displayed as small pot plants, all profusely flowered. *Sollya Drummondii* has pretty, small blue flowers like those of *Lobelia compacta*. *Kalanchoe kewensis excelsior*, *Aristolochia elegans*, *Eremurus Warei*, standard *Fuchsias* and other subjects were mingled with pleasing effect. The same firm also showed some delightful English Irises and a collection of Carnations. (Silver Flora Medal.)

Messrs. JOHN PEED & SONS, West Norwood, made a large display with *Gloxinias*, having well-bloomed plants in a large variety of colours. Adjoining these they staged a collection of Alpine plants, and small specimens of Cactaceous species.

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, showed choice stove and greenhouse Ferns, principally *Davallias*, *Adiantums*, *Gymnogrammas* and *Polypodiums*. The plants were very handsome with their new season's fronds. Among the finer we remarked *Adiantum Veitchii*, a tinted kind, *A. Farleyense*, *Pteris tricolor*, *Nephrolepis exaltata* var. *Marshallii*, *Lomaria discolor* (an elegant miniature tree-Fern), *Polypodium Knightiae*, and *P. sepultum*. Messrs. MAY also showed a magnificent specimen of *Ceropegia Woodii*. (Silver Banksian Medal.)

Carnations of the border and perpetual-blooming types were exhibited by Mr. CHAS. BLICK, The Warren Nursery, Hayes. Mr. BLICK is a well-known raiser of these flowers, and he had several new varieties, all of great beauty. Amongst these Donald McDonald, a rose and yellow variety of great size, attracted our notice; others that were especially choice were King Arthur, Ebony, Honey-moon (white), Marmaduke, R. Morton (orange suffused with rose),

Solfaterre (yellow), Max Ridley (slaty buff with rose-coloured bars), Lady Grimston, and Dauntless, these being all of the border class. (Silver Flora Medal.)

Some exceedingly choice Carnations of the yellow Cecilia variety were shown by A. C. HAMMERSLEY, Esq., Bourne End, Buckinghamshire (gr. Mr. T. Waller). They consisted of pot plants arranged as a floor group with a border of Sweet Peas in vases and a row of *Adiantum* Ferns. The blooms of the Carnations were some of the largest we have observed of this variety. (Silver Banksian Medal.)

Another group of Carnations was displayed by Lord HILLINGDON, Uxbridge (gr. Mr. A. R. Allan). It consisted exclusively of the white variety of the *Souvenir de la Malmaison* type known as Nell Gwynn. (Bronze Flora Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, showed a pretty group of Carnations, arranged on the floor, their new *Souvenir de la Malmaison* variety Irene, of pink colour, being largely represented. There were also large sheaves of Maggie Hodgson, Juliette, Lady Grimston, Duke of Westminster, and others. (Silver Banksian Medal.)

Mr. H. BURNETT, Guernsey, set up a display of Carnations, having large bunches of well-known sorts, arranged with *Asparagus Sprengeri*. (Silver Banksian Medal.)

Mr. CHARLES TURNER, Royal Nurseries, Slough, showed *Souvenir de la Malmaison* and border Carnations in variety. Of the latter type we may mention Purple Empress, a flower with a dense purple edge to the petals; Lady Desborough, rose-edged, neat and perfect of form; Voltaire, red-edged; Horace Hutchinson; Sunbeam, wire-edged; Cecilia, canary yellow; and Jocelyn, of a darker tint than The Mikado. Mr. TURNER also showed the new pink Rambler Rose, an exceedingly free-flowering variety.

Messrs. H. CANNELL & SONS, Swanley Junction, showed a new trailing *Lobelia*, with cheerful blue flowers. The plant has much of the habit of the variety *gracilis*, but it is more robust and enduring. This firm also showed *Cannas*; the better ones, as regarded colouring and substance in the flowers, were Dr. H. Dohrn, Andre Magre, Gwaikar of Baroda, Mrs. J. Wigans, Frau E. Siebert, *Rosea gigantea*, Aurea J. B. van der Schoot, Graf Tolstoj, and R. Wallace.

Roses were well shown by Messrs. WM. PAUL & SON, Waltham Cross, Hertfordshire. We noticed a fine stand of the variety Margaret, also some choice blooms of Hugo Roller, the soft, yellow petals of the latter being suffused at the margins with rose-red, Bianca, Liberty, Alice Cory Wright, and Paul Lede were well represented, with many other sorts. (Silver Banksian Medal.)

Messrs. FRANK CANT & CO., Braiswick, Colchester, showed cut Roses in great beauty, including many varieties of the Rambler class. Others noted in good condition were Gruss an Teplitz, Richmond, Gustave Regis, Mme. Abel Chatenay, Mme. Jenny Gillemot, Gen. Gallieni, Una (a single-flowered Rose 4 inches in diameter), Laurent Carlo, Rhea Reid, Mme. Melanie Souper, Mrs. Aaron Wood, and Lady Battersea. (Silver-gilt Banksian Medal.)

Messrs. D. PRIOR & SON, Colchester, exhibited Rose blooms, mostly in boxes, a few being in epergnes. Dean Hole was prominent, a box being wholly filled with this variety. Lady Ash-ton, J. B. Clark, Konigin Carola, General MacArthur, Florence Pemberton, Lohengrin, Lady Mary Fitzwilliam, and Mrs. Theodore Roosevelt were other conspicuous varieties. (Silver-gilt Flora Medal.)

Messrs. BEN R. CANT & SONS, Colchester, showed Roses in variety, the top row being of large, single sorts, such as Lady Curzon (pink), Maharajah (crimson), Una (white, with golden-coloured stamens, very effective), and Irish Glory (rose). The others were principally well-known H.T. varieties. (Silver Banksian Medal.)

Messrs. G. STARK & SON, Great Ryburgh, Sweet Pea specialist, exhibited these flowers largely. Besides well-known favourite varieties, we noted Improved G. Stark, Aurora Spencer, Suffragette, Mercia, Queen Victoria, and Mrs. Duncan. (Bronze Flora Medal.)

Messrs. R. H. BATH, LTD., Wisbech, made a bold show with large, bright blooms of Pæonies. Lord Derby (crimson), Kam no Kegoro (rose, with a fine gold centre), Duchesse de Nemours (white), Her Grace (soft pink), La Tendresse (white, very large), Chas. Leveque (blush), Lady

Anna (rose) and Mons Dupont (cream) are a few of the choicer sort exhibited in the collection. (Silver-Gilt Flora Medal.)

Messrs. PAUL & SON, Old Nurseries, Cheshunt, showed a large collection of Pæonies with a row of Delphiniums and Irises at the back. A selection of the Pæonies includes Jules Lebon, crimson; Gloire de Douai, dark crimson with golden centre; Loise, carmine; de Verneville, pink; Lady Carrington, blush pink; Lucie Mallard, lilac; and Bastein Lepage, carmine with silver sheen. (Silver Flora Medal.)

Messrs. WM. CUTBUSH & SON, Highgate, London, N., showed a group of hardy flowers, embracing a wealth of fine subjects. They had bold spikes of Eremuri, many kinds of Irises, Pæonies, Poppies, Lupins, Gladioli, Delphiniums, Campanulas, and other showy subjects in great variety. They also showed their new Carnation, Lady C. Waring, that received a Certificate last week at the York Show (see p. 412). (Bronze Flora Medal.)

A noticeable exhibit of *Lilium croceum* was shown by Sir ALBERT ROLLIT, St. Anne's Hill, Chertsey. The trusses of blooms were exceedingly fine.

Messrs. BARR & SONS, King Street, Covent Garden, showed varieties of English and Spanish Irises, Ixias, Heucheras, Gladioli, Poppies, *Lilium monodelphium Szovitzianum*, *Nymphaeas*, *Brodiaeas*, &c.

Mr. H. C. PULHAM, Stanstead, Essex, showed a selection of rock-garden and border flowers. *Orchis latifolia* and *Rhododendron ferrugineum* were well shown.

G. FERGUSON, Esq., Weybridge (gr. Mr. F. W. Smith), showed seedling Delphiniums in more than 100 sorts. There were varieties in all shades from white to dark blue, some being of mauve and lavender tints. Most of them had bold spikes of large flowers. (Silver Flora Medal.)

Delphiniums were also shown well by Messrs. KELWAY & SON, Langport, who had also large banks of Pæonies and vases of Sweet Peas. Delphiniums True Blue, Queen Mother, John Thorpe, Neil Gow, Queen Alexandra, Prince Andrew and Athos are all magnificent varieties. (Bronze Flora Medal.)

Mr. AMOS PERRY, Hardy Plant Farm, Enfield, occupied a considerable amount of table with cut blooms. Novel, or of especial merit, were the following subjects, viz., Papaver Mrs. Perry, a pale red flower 6 inches in diameter, single-flowered variety; Delphiniums, of which the following possessed spikes of great size and fine colouring: Lamartine (dark blue), Mrs. Brunton (sky blue), Masterpiece (bright blue), Persimmon (light blue), Belladonna semi-plena and King of Delphiniums; Heuchera in variety; *Lupinus polyphyllus roseus*, Gladioli, Iris *Brodiaeas*, *Mimulus Lewisii*, a great mass of *Achillea alpina*, Pæonias in variety, including the bright scarlet Mrs. Perry, and *Lilium van Houttei*, not unlike *L. umbellatum*, but much smaller. (Silver-gilt Banksian Medal.)

Mr. R. C. NOTCUTT, Nurseryman, Woodbridge, Suffolk, likewise showed hardy flowers extensively. We noted the fine *Campanula persicifolia alba*; *Alstroemeria aurea*, and the more rare *A. braziliensis*, *Lilium Hansonii*, *Lysimachia velutina*, *Gillenia trifoliata*, *Lilium umbellatum*, Iris in variety, and Delphiniums. (Bronze Flora Medal.)

Messrs. BAKERS, Wolverhampton, showed a fine strain of Aquilegias in almost every variety of colour found in these flowers.

Messrs. DOBBIE & CO., Edinburgh, showed Pansies and bedding Violas. The best of the Pansies were Mrs. McCallum, J. H. Whitley, Dr. Marr, Lizzie Storer, Bronze Kintore, Baillie Watt and Griffie Smith. Of Violas, which were many and good, Lilacina, Royal Scot, Peace, Maggie Mott, True Blue, Redbraes Yellow and Seagull were excellent varieties. *Antirrhinum Cottage Maid* had flower-spikes of a length of 1½ feet, with rosy-tinted flowers.

Messrs. T. S. WARE, LTD., The Nurseries, Feltham, Middlesex, showed flowers of herbaceous plants, including Pæonies in variety, Delphiniums, including Polestar and Persimmon especially fine in colour and size of flowers and spike; *Achillea Boule d'Argent*, and *Aster sub-cœrulea major*, which has lavender-blue rays and a yellow disc. (Bronze Flora Medal.)

Messrs. G. JACKMAN & SON, Woking, showed a quantity of hardy herbaceous flowers, such as Irises, Campanulas, Delphiniums, Dianthus,

Scabious, Clematis recta, Dracocephalum japonicum, and Pæonies.

Mr. A. R. UPTON, The Guildford Hardy Plant Nursery, was another exhibitor of garden flowers, having Pæonies, Potentilla, Escallonia Langleyensis, Pentstemon, Delphiniums, and some potsful of the rarely-grown Campanula pulla.

Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester, showed Gladiolus Colvillei rosea, Inula glandulosa, Heuchera micrantha, H. brizoides, Iris in variety, and Campanulas.

Messrs. R. WALLACE & Co., Colchester, displayed some choice Irises, also Ixias Grand Duke, rosea alba, Vulcan, a red-flowered variety, and Achievement, a pretty rose-coloured flower.

Messrs. G. & A. CLARK, LTD., Dover, showed many species and varieties similar to the foregoing exhibits. Other than these were flowering shoots of Rubus virginica, a plant which has purple-coloured blossoms; Pyrethrum Pericles, Veronica teucurium, Rodgersia podophylla, Incarvillea Delavayi, Oenothera Youngii, Phlox Laphamii, Geum coccinea Mrs. J. Bradshaw, Campanula Grosseii, Pæonia General Nogi, of a crimson colour; Iceland Poppies, and excellent plants of Gilea coronifolia, furnished with its bright, scarlet flowers.

Mr. G. REUTHE, Fox Hills Nurseries, Keston, exhibited a large quantity of flowers, including Pæonia herbacea, Eremurus, Iris, Azalea myrtifolia and other dwarf-growing kinds; Incarvillea, Ericas of hardy species, including E. cinerea alba, several of Lemoine's Philadelphuses, hardy Cypripediums, Magnolias, Rhododendrons and other interesting species. (Silver Banksian Medal.)

Mr. F. BOUSKELL, Market Bosworth, brought seedling varieties of Verbascom Chaixii, having brown, white, yellow and copper-coloured flowers. The crosses were of various character, Celsia pontica being employed in some cases as a parent.

A small but choice collection of Iris of the Spanish and English types came from Messrs. W. BULL & SONS, King's Road, Chelsea, S.W. Grand Maître, Lord Duncan, Agrippa and Lady Roberts being especially pleasing in regard to colouring.

Mr. G. W. MILLER, Wisbech, displayed a batch of a new double, pink Pyrethrum labelled Queen Mary.

Mr. JAMES BOX, Lindfield, Sussex, showed a fine floral display, having banks of Delphiniums, Irises, Poppies and other garden flowers as a setting to a collection of Sweet Peas and Pansies. (Silver Banksian Medal.)

The Misses HOPKINS, Shepperton-on-Thames, again contributed a rock-garden exhibit planted with seasonable subjects (Bronze Banksian Medal.)

Mr. R. GILL, Tremough, Cornwall, showed plants of Primula imperialis in flower, the spikes of yellow flower being disappointing compared with the great vigour of the foliage. A new variety of Chrysanthemum maximum named Mrs. Leigh was extensively shown by this exhibitor.

AWARDS OF MERIT.

Awards of Merit were recommended to the following subjects:—

Delphinium Purple Velvet.—This new variety, exhibited by Messrs. KELWAY & SON, has large, single flowers, of an intense shade of blue, the margins of the petals being of purple.

Delphinium Theodora.—This variety has large flowers, which may be described as ivory-white with yellow centre. Shown by G. FERGUSON, Esq., Weybridge.

Iris albo-purpurea Colchesterensis.—The type of this Japanese species, figured in the *Botanical Magazine*, tab. 7511, has very pale-coloured flowers. Messrs. WALLACE & Co. now showed a form which they call Colchesterensis, which exhibits very rich blue with purple shade. The colour is especially rich in the curiously-drooping falls. It is said that this form was introduced from Japan when the lighter-coloured type first came here, and that it was known then as cœrulea. If this was the case, it must have dropped out of cultivation afterwards. It is exceedingly pretty.

Iris × fulvala.—This is a hybrid from a cross between I. fulva and I. hexagona Lamancei, carried out in 1907 by Mr. W. R. DYKES, Charterhouse, Godalming, the exhibitor. The hybrid resembles I. fulva in growth, but is distinctly more floriferous, while the violet-coloured flowers show the influence of I. Lamancei, the pollen

parent, both in their shape and in the presence of the pubescence along the central ridge.

Kalanchoë × kewensis var. *Excelsior*.—K. × kewensis was obtained from a cross between K. flammea and K. Pentii, and the new variety Excelsior is a sport from K. kewensis. It has a more compact habit than the type, being 1 foot less in height at time of flowering, and the flowers are of brilliant rose-purple colour in place of the pale shade in K. kewensis. Shown by Messrs. JAMES VEITCH & SONS.

Rose Freda.—This is a promising hybrid Tea variety exhibited by Messrs. PAUL & SON, the Old Nurseries, Cheshunt. The form is good, and the flower promises to have a fair amount of substance, while the colour is rose, with just a little violet shade. Slightly fragrant.

Sweet Pea Iranhoe.—This is a very pretty mauve-coloured Sweet Pea of pure Spencer form and large size. Shown by Messrs. DOBBIE & Co.

Sweet Pea Sunproof Crimson.—Messrs. DOBBIE & Co. showed splendid flowers of this brilliant, crimson-flowered Spencer type. It is the best of its section, and the least liable to burn of all varieties of similar colour.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Harry J. Veitch, W. Boxall, F. Sander, C. H. Curtis, A. A. McBean, Walter Cobb, R. G. Thwaites, de B. Crawshaw, W. H. Hatcher, A. Dye, H. G. Alexander, W. H. White, H. A. Tracy, Gurney Wilson, J. Wilson Potter, C. J. Lucas, W. Bolton, F. J. Hanbury, J. Charlesworth, and Sir Jeremiah Colman, Bart.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for an effective group, in which excellent varieties of Lælio-Cattleya Aphrodite and other showy hybrids were prominent. Among Cattleyas, the charming and delicately-tinted C. Mossiæ Arnoldiana, of the original form, was the best. Of other things noted, Odontodia Charlesworthii, the new O. Corneyana, and O. Vuystekeæ gave bright scarlet colour; a very fine specimen of Bulbophyllum virescens; Zygo-Colax Charlesworthii, Cypripedium bellatulum Queen of Spain, with large cream-white flowers spotted with pale rose; the green Cirrhæa saccata viridissima, Miltonia vexillaria Cobbiana, and other rare things were in excellent condition.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Flora Medal for an extensive and very pretty group, in the centre of which a fine example of Acineta Humboldtii, in a setting of yellow Oncidiums, produced a telling effect, on each side being batches of white Odontoglossums, and beyond them fine specimens of Coelogyne Dayana, with many long, drooping spikes. With them were a selection of Masdevallias; Bulbophyllum tremulum, B. Claptonense, B. Lobbi, and other pretty botanical Orchids. A nice Cattleya Mendelii, with blush-white sepals and petals; C. Mossiæ Wageneri, and Reineckiana; Chysis Sedenii, Dendrobium nobile virginale, some pretty Lælio-Cattleyas, Odontoglossums, Oncidium Lanceanum, O. pulchellum, O. monachicum, the elegant little Vanda parviflora, &c.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed a good specimen of the rare Dendrobium Williamsianum, with two spikes of large, violet-tipped flowers; Odontoglossum ardentissimum xanthotes Fairlawn variety, a good white flower with a few yellow spots; a Lælio-Cattleya, near to L.-C. Gotoiana, and two dwarf Zygopetalums.

WILLIAM THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens), sent an interesting selection of Odontodas and Odontoglossums, including several of his Odontodia Nevense (Odontoglossum nevadense × Cochlioda Noezliana), with light scarlet flowers; varieties of O. Vuystekeæ, the Walton Grange form of which secured the only Award of Merit given at the meeting; Odontoglossum eximium Centuary, and O. amabile Graireanum.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Mossiæ Bantsee, a good white flower near to Wageneriana; C. M. Michael, a large flower of the typical colour, and Lælio-Cattleya Mrs. W. Hopkins (L. Iona × L.-C. Haroldiana), an intensely dark claret-purple flower, the lip being the darker.

Sir TREVOR LAWRENCE, Bart., K.C.V.O. (gr. Mr. W. H. White), sent good examples of Physo-

siphon Loddigesii; Octomeria diaphana; a fine form of Odontodia heatonensis, and a grand specimen of Odontoglossum Vuylstekei.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), showed Odontoglossum crispum "The Hon. Marguerite Joicey," a pretty variety with white flowers delicately tinged with rose-pink.

WALTER COBB, Esq., Normanhurst, Rusper (gr. Mr. C. J. Salter), showed Dendrobium Dearei Cobb's variety, with pure-white flowers, having a green base to the lip and apparently a stronger grower than the ordinary form.

Messrs. J. & A. A. McBEAN, Cooksbridge, staged a small group, in which the best plants were Cattleya Mossiæ Rosita, a good rosy-lilac flower with unusually pretty, crimped labellum veined and spotted with purple; a distinct, blush-white C. Mendelii, with a purple-feathered line on the petals, and a good C. Mossiæ Wageneri.

Mr. H. A. TRACY, Twickenham, showed Cattleya Mendelii cœrulea Tracy's variety, a white flower with a blue-tinted front to the lip; Lælio-Cattleya eximia magnifica of good size and with a dark reddish-purple lip, and Odontoglossum Eleanor (cirrhosum × Uro-Skinneri).

Mons. MERTENS, Ghent, showed a small selection of hybrid Odontoglossums, with a large-flowered Cattleya Mossiæ.

W. H. ST. QUINTON, Esq., Scampston Hall, Rillington, Yorks., sent Lælia Wilfred (cinabrosa × Dayana), with reddish-orange sepals and petals and purple lip; and Cattleya Gaskelliana Scampston Hall variety, white, with a lilac tinge on the front of the lip.

F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, Dublin, sent a fine inflorescence of Luddemannia Sanderiana var. Kranzlin, now placed under Lacæna bicolor, the only difference being the absence of purple spotting on the lip.

AWARDS.

AWARD OF MERIT.

Odontodia Vuylstekeæ Walton Grange variety (O. Pescatorei × C. Noezliana), from WILLIAM THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens).—A very fine form of this beautiful hybrid, having handsome scarlet flowers, with a few indistinct, whitish markings on the sepals and petals.

CULTURAL COMMENDATION.

To Mr. H. G. Alexander (Orchid grower to Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O.) for a finely-bloomed plant of Lælia tenebrosa Walton Grange variety, with four flowers on a spike.

To Mr. James Hudson (gr. to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton) for a noble plant of Cattleya Warscewiczii gigantea, with six very fine flowers on one spike.

To Mr. W. H. White (Orchid grower to Sir TREVOR LAWRENCE, Bart. K.C.V.O.) for Odontoglossum Vuylstekei with two spikes, each bearing 10 very large, yellow flowers blotched with purplish-brown.

Fruit and Vegetable Committee.

Present: J. Cheal, Esq. (in the Chair), and Messrs. W. Bates, E. Beckett, A. Dean, H. Parr, G. Hobday, A. R. Allan, J. Vert, P. D. Tuckett, J. Jaques, J. Davis, C. Foster, O. Thomas, and W. Poupart.

Mr. F. B. WHITE, Old Netley, Southampton, sent Strawberries Mark Twain and Hampshire Beauty. The former is described under Awards. The latter was a large, red-fruited variety, obtained by crossing Noble and Royal Sovereign.

Mr. T. A. SMILES, Dartford, Kent, sent Strawberry Excelsior. The berries are long, tapering, and pointed, bright in colour, but of medium size. It was decided to ask the raiser to send plants for trial at Wisley.

Messrs. LAXTON BROS., Bedford, sent numerous fruits of their varieties of Strawberries British King, Utility (having long fruits and of the colour of Waterloo), Bedford Champion, Rival, and Profit.

LORD HOWARD DE WALDEN, Saffron Walden (gr. Mr. Jas. Vert), showed a box of fine, richly-coloured fruits of Strawberry Waterloo, from pot plants in a cold house.

Messrs. G. BUNYARD & Co., Maidstone, staged a collection of Cherry trees in pots, mostly of 10 inches diameter, the trees ranging from 5 feet to 6 feet in height. There were 17 of them. White varieties included Napoleon, Emperor

Francis, Monstreuse de Mezel, Elton Heart, and Kentish Bigarreau. Reds and blacks were Belle de St. Trouc, Empress Eugénie St. Margarets, Florence, Ludwig's Bigarreau, Guigne d'Annony, and Black Eagle. (Silver Knightian Medal.)

Messrs. JAS. VEITCH & SONS, Chelsea, had a collection of some two dozen trees in pots, comprising Peaches, Nectarines, and Figs. The Figs, staged at the back of the group in large tubs, were fine bushes of St. John, each carrying from 30 to 50 large fruits. Younger trees, in 10-inch pots, were also freely fruited, as also were those of Pingo de Mel. The Peaches included a large, flat-trained standard of Duke of York, carrying two dozen fruits and bushes of that variety and Hale's Early. The Nectarines comprised Cardinal and Early Rivers. All the trees were in robust health, and in each case finely-fruited. (Silver-Gilt Knightian Medal.)

AWARD OF MERIT.

Strawberry Mark Twain (Royal Sovereign \times Keen's Seedling).—The fruits are of medium size, and greatly favoured Keen's Seedling in appearance. They are of a good, dark colour, and possess a firm flesh, solid, and of excellent flavour. Shown by Mr. WHITE, Old Netley, Southampton.

LECTURES ON PANSIES AND VIOLAS.

At the afternoon meeting of Fellows, there were two papers on "Pansies and Violas," one by Mr. James Grieve and another by Mr. William Cuthbertson. Mr. Grieve was unable to be present, but Mr. Cuthbertson was there, and showed flowers to illustrate the subject under discussion. The chair was occupied by Mr. Alexander Dean.

MR. JAMES GRIEVE'S PAPER.

It was in 1854 that I began my gardening career, and, from the beginning I took an interest in the Pansy. In those days, the English Show Pansy was the only type cultivated. I can well remember the noted English growers of that day, Charles Turner and W. Bragg, of Slough, Henry Hooper, of Bath, and William Dean. Scotch growers were also turning their attention to Pansies at that time. Mr. John Downie had, a few years previously, resigned his situation as gardener at Southbank Park, Edinburgh, and had, with Mr. Laird, established the firm of Downie & Laird. Mr. John Laing was still gardener at Dysart House; Messrs. Dicksons & Co., Edinburgh, Handyside, of Musselburgh, Lightbody, of Falkirk, White & Sinclair, of Paisley, Syme and Middlemas, of Glasgow, were all trade growers of Pansies.

In the amateur classes of these days two men who were to become famous were competing against each other—Dr. Stuart and James Dobbie. The varieties in vogue in these days were, among dark selfs, Duke of Perth and St. Andrews. White selfs were a poor strain, and yellow selfs were not much better. Cherub, a yellow self, sent out about 1860 by Hooper, of Bath, was the first really good, yellow self that appeared. In these days there were no cream or blue selfs. Our great aim was to get flowers with solid blotches and distinct markings, with an eye in the centre of the flower.

After five years' experience in private establishments, I entered the service of Messrs. Dicksons & Co., Edinburgh, in 1859. In February, 1860, Messrs. Dicksons' Pansy grower, Daniel Hafferman, an Irishman, left them to become nursery manager to Messrs. Inrie, Ayr, and I was promoted to take charge of the Pansies. This charge I held for 36 years. In 1860, all the best Pansies were grown in pots, mostly 8-inch, plunged in ashes in cold frames. Great pains were taken to secure the best loam, which was mixed with old cow manure. Artificiality was almost unknown then, and I often think it would be better if they were unknown still. It would be better, I am sure, for the constitution not only of our Pansies but of our Potatoes.

I was the first to introduce the practice of planting Pansies out in cold frames to obtain exhibition blooms, and this plan is now followed universally. The Show Pansy continued to be the leading type of Pansy up till about 1870, great improvement in its form, substance, and markings being made. The Fancy Pansy made its appearance in Scotland about 1861, when it was grown by Downie, Laird, & Laing. I well re-

member the first two varieties—Dandie Dinmont and Du Hamil. Messrs. Downie, Laird, & Laing showed them in the Experimental Gardens, Edinburgh, at the show of the Royal Caledonian Society. I recollect this so well, because they were shown in rows of six blooms, each variety alternating with the other. Many strange and forcible phrases were used to condemn the newcomers by the old florists, but their novel and gaudy colours and great size of bloom gradually gained the favour of the ladies, and, with the usual result, that the men had to follow suit. From a roughness almost like that of a Scotch terrier, the Fancy Pansy was selected into shape, and, by 1880, had almost eclipsed the Show Pansy and become a universal favourite.

The Fancy Pansies were bred entirely from the Continental introductions. They were never crossed with the Show Pansy. That would have made confusion worse confounded. The method adopted in raising new varieties was simply to take seed from the best-formed and gayest-coloured.

From the very beginning of my career, I have been specially attracted to the Viola, and began by crossing, when I was very young, all the species I could get my hands on, embracing lutea from the Pentland Hills, cornuta from the Pyrenees, stricta from India, per Miss Hope, of Wardie, and amena from Moffat. I started to cross-fertilise all these with pollen of the Show Pansy, and the results were highly satisfactory. I never got any good results with the reverse cross. In those days there was a battle between the so-called bedding Pansies and the Violas (I use the word Viola here in its modern application), and it is still going on. To illustrate the state of matters, 40 years ago we had Bedding Pansies (which were simply Show Pansies with good bedding habits), such as Blue King, Lilacina, Holyrood, Tory, and Regina (white), and Henderson's Golden Bedder; and Violas such as Golden Gem, Alpha, and Grievei. The march of development, so far as varieties raised by me is concerned, is represented by Sovereign, Pilgrimage, Scotia, Acme, Royalty, Edina, Formosa, Virginalis, Bullion, Dawn of Day, Merchiston Castle, and I consider I reached the high-water mark recently with Redbraes Yellow and Redbraes White, Royal Scot, and Redbraes Bronze.

In the beginning, as I have already said, my varieties were all obtained by crossing the wild types with pollen from Show Pansies. For example, V. cornuta \times Dux Show Pansy gave Vanguard (purple); V. stricta \times Sovereign gave Ariel and Bullion; V. cornuta improved (named Perfection) \times Sunray Fancy Pansy gave Lilacina; V. cornuta (Perfection) \times Dux Show Pansy gave Tory.

All my recent varieties have been raised without the aid of cross-fertilisation. I have simply saved seed from the best varieties existing in their respective classes, selected those which I considered improvements in colour or habit, and tried them for several years.

Contemporaries with my early work were few, as the Viola was scoffed at by many traders. I remember my first exhibit of Violas in London. It was in 1870, at the Crystal Palace. I staged, for Dicksons & Co., 48 varieties, in bunches, of Bedding Violas and Pansies, and, instead of booking orders, I had to stand the scoffs and jeers of many, including George Glennie, who gave me a terrible dressing for bringing such weeds such a distance. But I was not discouraged; in fact, I rather enjoyed the castigation, and went home determined to persevere and work out my ideas of what was wanted as a bedding plant, with the result that, when the boom came, we were ready for it, and Messrs. Dicksons' reaped a rich reward, for many seasons selling a very large stock completely out at 25s. per 100 for general varieties; for new varieties 2s. 6d. each, and many seasons we could not meet the demand. In those days (1870 to 1885) we cultivated all the Violas in thumb pots. The cuttings were put in in September in frames, and, when rooted, potted up into small pots, being sent out in this way to the gardeners in spring.

In Scotland, Messrs. Dicksons & Co. had no serious rivals in the raising and introducing of Violas until Messrs. Dobbie & Co. took up their culture about 1890, although good work had been done in the way of raising by Dr. Stuart and Mr. John Baxter.

(To be continued.)

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 2.—This was the closing meeting of the Society's year. A magnificent display was made by the members who were in competition for the valuable cups.

Messrs. Charlesworth & Co.'s Cup for new plants was won by J. T. CLIFTON, Esq. (gr. Mr. Float).

Messrs. Sander & Son's Cup for Cypripediums was won by H. J. BROMLOW, Esq. (gr. Mr. Morgan).

Messrs. Stuart Low's Cup for Cattleyas and Lælias was won by J. MCCARTNEY, Esq. (gr. Mr. Holmes).

Mr. Robson's Cup for Odontoglossums was won by A. WARBURTON, Esq. (gr. Mr. Dalgleish).

Mr. Ward's Cup for amateurs was won by Mr. N. GALLOWAY, the conditions in this competition being for plants grown without the aid of a gardener.

The annual general meeting of the Society was also held on this date. It was satisfactory to note that the work of the Society was advancing, and that interest in Orchid culture was improving. P. W.

ROYAL CORNWALL.

JUNE 8, 9.—This year's show of the Royal Cornwall Society was held at St. Ives, which is built literally upon the cliffs and overlooks a beautiful bay on the north coast of the county. Escallonia macrantha grows wild amongst the rocks; Fuchsias grow into small trees, and the whole of the native vegetation is remarkable for its luxuriant and semi-tropical character.

The exhibition was remarkable for the honorary and competitive exhibits of Rhododendrons and other flowering shrubs, which had been grown in the open. Mr. H. HODGE showed 100 vases of Rhododendrons of beautiful colours and fine forms. T. B. BOLITHO, Esq., of Trewidden (gr. Mr. G. Maddern), showed a most interesting exhibit, including Magnolia Watsonii, M. hypoleuca, Chorozema Lowii, Buddleia Colvilei, Viburnum tomentosum Mariesii, Allium Mollii, Embotrium coccineum, Myosotidium nobile, Tricuspidaria dependens, Euopsis virginicus, Calceolaria violacea, Corokia macrantha, Diosma ericoides, and many other interesting things which grow in this favoured locality.

Mr. W. J. GODFREY, Exmouth, put up a stand of varieties of Oriental Poppies, some Pæonies, a very fine show of Pelargoniums, Zonal Pelargoniums, Cannas, &c.

The DEVON ROSARY Co. showed a fine lot of cut Roses, which, considering the earliness of the show, made a remarkable display.

Messrs. BLACKMORE & LANGDON, Bath, staged double and single Begonias, relieved with cut flowers of the American and "Malmaison" Carnations.

E. HAIN, Esq. (gr. Mr. Madge), and T. ROBINS BOLITHO, Esq. (gr. Mr. C. Creek), showed many interesting plants.

As may be expected, there was a good show of vegetables, for the whole countryside is composed of market gardens. Large quantities of fruit, flowers, and vegetables are sent to the great central markets from this district every year. There were splendid samples of Cauliflowers, Turnips, Carrots, Asparagus, Onions, Marrows, &c.

CROYDON & DISTRICT GARDENERS'.

About sixty members and friends of this society paid a second visit to the gardens of Sir Everard Hambro, K.C.V.O., Hayes Place.

The rock garden claimed first attention, and many interesting features were found here. Coming next to the lawns, the grand specimens of trees were much admired, as also were miniature Water-Lily ponds, looking promising for a good display in a few weeks' time. In the conservatory a plant of Pelargonium, 30 years old, attracted attention. In the pleasure grounds the bold masses of Rhododendrons were very striking. The kitchen garden, and the early crops of vegetables and herbaceous borders were full of interest.

ROYAL OXFORDSHIRE HORTICULTURAL.

JUNE 21.—This exhibition was held, as usual, in the grounds of Trinity College, Oxford, in delightful weather, and proved a great success. The grounds are in exceptionally good condition. A note given me by Mr. W. Greenaway, secretary to the Society, states that Trinity College was founded towards the close of the 13th century by the Priors of the Benedictine Abbey of Durham as a nursery for that society, and it was called Durham College. Its gardens consist of spacious lawns with outside borders overshadowed by Yews, which are, in fact, merely the sprouting of the ancient topiary alcoves which were carried around the boundaries. It has a "Lime Tree Walk," originally an avenue of 48 trees (two or three of which have died), 24 on either side, the upper boughs being skilfully interwoven to provide a canopy of continuous leafage. Although the trees are regarded as 300 years of age, yet the regular pollarding of the roof-like portion has prevented the boles attaining a bulk larger than a man's body.

As at most flower shows, the non-competitive groups at Oxford provided an imposing floral display, and on this occasion was seen a most artistically-arranged group of Orchids relieved with Mosses, Ferns and other foliage plants. The exhibitor was F. MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth). The group was superior in artistic merit to the fine display for which Mr. OGILVIE secured the Royal Horticultural Society's Gold Medal at the recent Temple Show. The group was arranged on the grassy surface in the centre of the large show tent: it had an irregular, conical centre, with dell-like depressions on each side, the centre being connected with the higher part of the end sections by bridges. At appropriate places specimens of finely-flowered Orchids were displayed on raised stands, the whole being covered with green Moss. Every point in the arrangement had been carried out in the most admirable manner, the colours of the foliage with which the plants were arranged being selected to harmonise with the colouring of the flowers. On the centrepiece were arranged *Lælio-Cattleyas*, principally fine forms of *L.-C. Canhamiana*, and *L.-C. Aphrodite*, with good specimens of the finely-coloured *L.-C. W. Balmforth*, also *L.-C. Epicasta* and *L.-C. Clive*, with two pure-white *Cattleya Dusseldorfæi* Undine, and the fine white *C. Mrs. Myra Peeters* with six flowers. In the centre of the lower spaces on either side were more than 100 flowers, the emerald-green and white *Cypripedium Maudiae*, *C. callosum* Sanderæ, and *C. Lawrenceanum* Hyeannum Bank House variety, beside which were many arching spikes of the white Moth Orchid, *Phalænopsis amabilis*, the centre of the bridging above being of *Epidendrum O'Brienianum* and *E. Boundii*. *Thunia Winniana* with fine terminal heads of rose-purple flowers, good *Odontoglossum crispum*, *O. Harryanum*, and some exceptionally fine hybrids; the deep scarlet *Odontodia Charlesworthii*, a grand specimen of *Epidendrum prismatocarpum* with 12 spikes; the pure white *Trichopilia Bachhousiana*, some profusely-flowered *Miltonia vexillaria*, *M. Bleuana*, and *M. Hyeana*; elegant spikes of the rose and white *Disa Luna*, a very fine *Cypripedium Vipanii*, *C. Laurebel* Shrubbery variety, and other fine specimens were prominently displayed. Among the foliage plants the variously-coloured *Acalyphas*, *Codiaeums*, *Caladiums*, and *Amaranthus salicifolius* gave a pleasing effect. The group was awarded a Gold Medal.

Mr. JOHN JOHNSON, Garsington, staged a large display of hardy perennials, *Pæonies* and *Carnations*, for which a Silver-gilt Medal was awarded.

Carnations were also well shown in a non-competitive group by Capt. A. G. RUSSELL, Holton Park, Wheatley.

In the competitive classes for *Roses* the 1st prize for a collection was won by Mr. JOHN MATTOCK, The Rose Nurseries, New Headington, Oxford, in whose collection Harry Kirk, His Majesty, Lyon Rose, Mme. Melanie Soupert, Mrs. E. J. Holland, Rhea Reid, and others were admirably shown; 2nd, Mr. GEORGE PRINCE, Longworth, Berks., who had also a very fine collection.

One of the tents was well filled with table decorations and other florists' designs.

Mr. W. T. MATTOCK was awarded the 1st prize for table decorations; Mr. H. MOUNT, University Park, showed excellently in the class for British Ferns; Mr. C. B. ANSTY for six exotic Ferns; and Mr. GEORGE PRINCE for 24 *Roses* and 18 Tea *Roses*.

Messrs. R. SYDENHAM, LTD., Birmingham, showed a fine stand of Sweet Peas. Rock-gardens were well arranged by Messrs. HEATH & SONS, Cheltenham and Messrs. TUCKER & SON.

Fruits were fairly well represented. Mr. S. BROWN, Aynho Park Gardens, won the 1st prize in each of the classes for Grapes, Peaches and Melons; and the Right Hon. L. HARCOURT, Nuneham Park, Abingdon (gr. Mr. C. E. Munday), in those for Nectarines and Cherries.

ROYAL AGRICULTURAL.

JUNE 21-25.—The 71st annual exhibition of the society was held on these dates in the spacious Wavertree playground, Liverpool. The site is in every respect a most suitable one, the extent being 108 acres and the place within easy reach of the railway goods yards, whilst the visitors can reach the show ground from all stations with a minimum of trouble. Following the custom of the past few years, the society promoted a flower show. This exhibition filled three large marquees. Mr. Peter Blair was superintendent of the horticultural section.

COMPETITIVE CLASSES.

In the class for a group of miscellaneous plants in and out of bloom in a space of 350 square feet, Messrs. JAMES CYPHER & SONS, Cheltenham, were awarded the 1st prize for an artistic combination of Palms and single-stemmed *Codiaeums* (*Crotons*), *Dracænas*, *Cattleyas*, *Phalænopsis* and other subjects; 2nd, Mr. W. A. HOLMES, Chesterfield, with highly-coloured *Codiaeums* and good *Odontoglossums*; 3rd, Mr. W. VAUSE, Leamington; 4th, Mr. JOE S. SHARP, Almondsbury.

Messrs. CYPHER & SONS also excelled in the class for a collection of Orchids arranged for effect in a space of 100 square feet. They staged a rich display, having especially good plants of *Odontoglossum amabilis splendens*, *Lælia Latona* superba and *Lælio-Cattleya Canhamiana* magnifica.

There were several groups of *Carnations* arranged for effect. The Earl of DERBY, K.G. (gr. Mr. E. F. Hazelton), won the 1st prize with well-flowered plants; 2nd, Messrs. YOUNG, West Derby, with varieties of the *Souvenir de la Malmaison* type; 3rd, Mr. C. ALCOCK, Liverpool.

Tuberous *Begonias* were shown by Messrs. BLACKMORE & LANGDON in a class for a group of these plants, being the only exhibitors. They staged a charming group, which included especially good specimens of Rt. Hon. J. Chamberlain, C. E. Small and Mrs. G. F. Fry.

The class for a collection of hardy cut perennials brought an imposing display. Messrs. HARKNESS & Co., Bedale, led with gorgeous Poppies, *Gaillardias*, &c.; 2nd, Mr. G. GIBSON, Bedale.

The best collection of cut *Roses* was put up by Mr. GEO. MOUNT, Canterbury, who had choice blooms of Frau Karl Druschki, Ulrich Brunner, Mrs. J. Laing, Crimson Rambler and others; 2nd, Mr. GEORGE PRINCE, Longworth, with somewhat smaller flowers; 3rd, Messrs. W. & J. BROWN, Peterborough.

Messrs. JAMES CYPHER & SONS won the 1st prize for a collection of stove and greenhouse plants in a space of 20 feet by 10 feet with choice examples of *Ixora Williamsii*, *Statice intermedia* Clerodendron Balfouri, *Pimelea diosmaefolia*, *Anthurium Scherzerianum* and *Erica Cavendishii*.

For a collection of Sweet Peas Miss HEMUS, Upton-on-Severn, was well ahead with a tastefully-arranged exhibit, especially fine being Helen Lewis, Primrose Paradise, Scarlet Paradise, Purple Paradise, and Paradise Suzana; 2nd, Messrs. E. W. KING & Co., Coggeshall.

VEGETABLES AND FRUIT.

For a collection of eight kinds, the Duke of PORTLAND, Welbeck (gr. Mr. J. Gibson), was the only exhibitor. He showed excellent White Leviathan Onions, Sutton's Favourite Carrots, Princess of Wales Tomatoes, Magnum Bonum French Beans, and Sutton's Centenary Peas, &c.

The Duke of PORTLAND also led in the class

for eight kinds of fruit with fine examples of Muscat of Alexandria and Black Hamburg Grapes, Seedling Melon, Early Rivers Nectarine, Brown Turkey Figs, and Dymond Peaches; 2nd, the Earl of HARRINGTON, Elvaston (gr. Mr. J. Goodacre); 3rd, the Earl of DERBY, K.G. (gr. Mr. E. F. Hazelton).

NON-COMPETITIVE EXHIBITS.

Messrs. SUTTON & SONS, Reading, showed a fine group of flowers, fruits, and vegetables. They had Melons in many varieties, with many of their well-known varieties of Tomatoes, Peas, Asparagus, Carrots, and other culinary produce. Tuberous-rooted *Begonias*, *Gloxinias*, *Lily-of-the-Valley*, and other pretty flowers were arranged in the central position of the display. This firm also showed nature study objects set up on cardboard, with a brief description attached.

Messrs. JAS. CARTER & Co., High Holborn, London, contributed groups of Liliiums, *Roses*, Cannas, *Verbenas*, &c., arranged in beds and banks, also Sweet Peas and English Irises, with an assortment of leading types of vegetables.

Messrs. ED. WEBB & SONS, Wordsley, arranged beds of *Hydrangeas*, *Spiræas*, *Verbenas*, &c., with good Melons, French Beans, Tomatoes, and other kitchen-garden produce.

Messrs. DICKSON'S, Chester, held the position of honour with a fine, oval bed of *Rhododendrons*, *Spiræas*, Conifers, &c., immediately in front of the Royal pavilion, whilst the stand was furnished with Irises, *Pæonies*, *Delphiniums*, and other flowers.

Messrs. LITTLE & BALLANTYNE, Edinburgh, staged climbing *Roses*, Liliiums, Ferns, Ivies, &c.

Messrs. DICKSON & ROBINSON, Manchester, had a charming display of climbing *Roses*, well-flowered, also *Carnations*, *Pyrethrums*, and many others.

Messrs. CLIBRANS, Altrincham, had *Marguerites*, Conifers, *Verbenas*, and other hardy flowers.

Messrs. TOOGOOD & SONS, Southampton, were well represented by fine Melons, Tomatoes, *Spiræas*, Lupins, and choice Sweet Peas.

Messrs. HARRISON & SONS, Leicester, had a pleasing lot of cut flowers, and vegetables in variety.

The KING'S ACRE NURSERY Co., Hereford, showed an assortment of trees and shrubs grown in boxes and an exhibit of fruit trees.

The Government of WESTERN AUSTRALIA contributed a collection of Apples of average size, but highly coloured.

Messrs. KER & SONS, Liverpool, staged stove and greenhouse plants and *Hippeastrums*.

Messrs. JOHN WATERER & SONS, Bagshot, staged *Kalmias*, interspersed with Maples and Oaks.

Messrs. GODFREY & SONS, Exmouth, showed border flowers.

Messrs. DICKSON, BROWN & TAIT, Manchester, exhibited fruit and vegetables.

Messrs. R. H. BATH, LTD., Wisbech, had a fine display of *Pæonies* and *Carnations*.

Messrs. A. DICKSON & SONS, Newtownards, showed *Roses*.

Messrs. BLACKMORE & LANGDON, Bath, put up a fine group of *Begonias*.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, contributed a display of *Carnations* and Orchids.

Mr. H. MIDDLEHURST, Liverpool, displayed Sweet Peas, pillar *Roses*, and Irises.

Mr. F. LILLEY, Guernsey, staged Irises and Gladioli.

Mr. A. J. A. BRUCE, Chorlton-cum-Hardy, showed *Marguerite* Alexander and a collection of insectivorous plants.

Messrs. H. B. MAY & SONS, Upper Edmonton, contributed a group of choice Ferns.

Messrs. BEES, Liverpool, arranged cut flowers and floral devices.

Messrs. HOGG & ROBERTSON, Dublin, had German and Spanish Irises, *Ixias*, *Pyrethrums*, &c.

Messrs. BAKERS, Wolverhampton, staged Bamboos, Water Lilies, *Sarracenias*, Irises and Poppies.

Messrs. R. WALLACE & Co., Colchester, showed Water Lilies, with *Delphiniums*, Liliiums, &c.

Messrs. JARMAN & Co., Chard, had Zonal *Pelargoniums* and *Roses*.

Messrs. BARR & SONS, London, showed Japanese pigmy trees and hardy flowers.

Messrs. KELWAY & SON, Langport, contributed a group of Pæonies and Delphiniums.

Messrs. DOBBIE & Co., Edinburgh, staged Sweet Peas and Aquilegias.

Mr. H. N. ELLISON, West Bromwich, displayed a group of Ferns.

Mr. R. BOLTON, Warton, made a bright display of Sweet Peas, including Nancy Perkins, of vivid colouring.

Mr. E. W. KING, Coggeshall; Mr. J. UNWIN, Histon, and Miss HEMUS, Upton-on-Severn, all displayed Sweet Peas.

Messrs. THOS. DAVIES & Co., Wavertree, showed Ferns, bulbous flowers and Rhubarb.

Hon. VICARY GIBBS, Aldenham (gr. Mr. E. Beckett), staged a choice collection of vegetables, having 70 dishes in all.



THE LATE A. B. CRICHTON.

Messrs. BEES, Liverpool, arranged a rock-garden exhibit, and Mr. W. ROWLANDS showed Roses.

Messrs. THOS. GREEN & SONS, Leeds, showed a large number of their well-known lawn mowers, worked with petrol, horse, and manual power. Messrs. RANSOME, SIMS & JEFFERIES had a similar stand of these implements.

Greenhouses, boilers, frames, and similar garden appurtenances were contributed by such well-known houses as Messrs. MESSENGER, Loughborough; W. TUCKER & SONS, Tottenham; HALLIDAY & Co., Middleton; J. WEBSTER & SONS, Wavertree; W. H. SKILTON, West Derby; and SKINNER, BOARD & Co., Bristol.

AWARDS.

Gold Medals: King's Acre Nursery Co., John Waterer & Sons, Alex. Dickson & Sons, R. W. Wallace & Co., Dickson, Brown & Tait, and Hon. Vicary Gibbs.

Silver-gilt Medals: Bees, Ltd., Dobbie & Co., Dickson & Robinson, and Hogg & Robertson.

Silver Medals: Miss Hemus, Godfrey & Sons, Unwins, Dicksons (Chester), W. and J. Brown and Barr & Sons.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

FESTIVAL DINNER.

JUNE 22.—The 71st anniversary festival dinner of the friends and supporters of this gardening charity took place on Wednesday last in the Whitehall Rooms of the Hotel Metropole. The Hon. Harry Lawson, M.P., presided, the company numbering 170.

Those present represented all branches of horticulture, with many notable patrons of gardening. Supporting the chairman, on his right, was Colonel Mark Lockwood, M.P., and on his left Sir Walter Smythe, Bart., with Messrs. H. J. Veitch, N. N. Sherwood, Geo. Paul, W. Bilney, Geo. Bunyard, H. B. May, L. Salamons, E. A. Ebbelwhite, W. Jeffries, Geo. Barr, J. W. Barr, T. Lamb, Owen Thomas, W. A. Baker, Geo. Monro, R. Piper,

Donald McDonald, H. Morgan Veitch, Ed. Sherwood, Wm. Sherwood, H. J. Adams, B. S. Faudell-Phillips, N. L. Cohen, Henry Jones, and others.

As usual the tables were beautifully decorated with flowers, principally Roses, Carnations, and Orchids.

After the loyal toasts had been observed, the chairman proposed "Continued Prosperity to the Gardeners' Royal Benevolent Institution." After referring to the pleasure it gave him to propose this toast, he said that all kinds of charity were excellent, and especially so when associated with thrift. The fund might be termed a national institution, for, although it might raise the wrath of some to be termed an agricultural labourer, no one would object to being termed a gardener, for everyone was a sort of a gardener, at least all pretended to be gardeners. In continuing, Mr. Lawson said, whatever our claims to this pretension, whether real or unreal, gardeners have made this country, for beauty and utility, the garden of the world. After referring to Evelyn's words about the life and felicity of a gardener, he spoke of Dean Hole, whom he preferred as a gardener above all others, for Dean Hole did much to impress all with the love of flowers. The Dean's decided preferences for the true, simple, English form of gardening have impressed themselves deeply upon the British public. Referring to gardening in the East End of London, Mr. Lawson spoke of those who live in the mean streets, but love flowers, which they learn to cultivate well. Gardeners have achieved much in spite of Nature. Our climate, said Mr. Lawson, is always bad, but our singleness of purpose has carried us through, and the Englishman is the best gardener in the world. There is no pleasanter feature of London life or city life than the flowers. The public bodies have done a great work in the beautifying of our public places and parks, and even the daily papers devote their columns to gardening matters. All this praise led him to speak of the men who have rendered possible this great love of flowers. Gardeners suffer, peculiarly so, from their own misfortunes as well as those of their employers, and it was on their behalf he pleaded the claims of the charity. Each year £4,000 is required to carry on the good work, and altogether the Institution had expended £130,000. Only £1,000 was assured each year, so that £3,000 must be obtained annually by subscriptions.

Mr. Harry James Veitch, the treasurer, replied. He thanked Mr. Lawson for his eloquent speech on behalf of the Institution. During the past year they had lost many supporters, including King Edward VII., who had contributed since 1862, and Baron Schröder, a generous donor, who had left them a legacy of £1,000. The Council of the Royal Horticultural Society were desirous of establishing some memorial to the late Baron, and they had decided to provide a pension in perpetuity, the recipient to be known as the Baron Schröder pensioner. In Scotland a fund is being raised to perpetuate the name of the late David Thomson, and it is also proposed in this case to establish a "Thomson pensioner." Mr. Veitch said that a gardener has to live a strenuous life, and his work was more difficult now than 50 years ago. Like other persons, he was liable to all kinds of illness and disease. A gardener might also be unfortunate in other ways, and he cited a case of a man who had lost all his invested savings, claiming aid and sympathy from the charity. In asking for increased support, Mr. Veitch said that last year there were 46 unsuccessful candidates, and the number is increasing. He referred to the valuable help of the auxiliaries, mentioning especially those of Worcester and Reading, which have contributed £1,000 each.

The toast of "Horticulture in all its branches" was proposed by Mr. E. A. Ebbelwhite, J.P., Clerk of the Worshipful Company of Gardeners, who referred to some interesting history of his Company. Mr. N. N. Sherwood and Mr. Robert Piper responded. Mr. Piper spoke of the excessive competition and extravagant taxation to which the commercial horticulturist is subjected. He offered advice to the chairman and other members of Parliament who were present as to the best means of remedying the trouble.

At this stage of the proceedings, the secretary, Mr. Geo. Ingram, announced the amount received during the evening as £1,900, including the following contributions:—The chairman, Hon.

Harry Lawson, £105; Messrs. Rothschild & Co., £105; N. N. Sherwood and his two sons, £100, and £25 to the Good Samaritan Fund; Mr. A. W. Sutton, £100, and £10 to the Samaritan Fund; Mr. E. A. Ebbelwhite, £106 4s.; Mr. H. J. Veitch, £26 5s.; Messrs. Jas. Veitch & Sons, Ltd., £26 5s.; Mr. McKellar, £33; Mr. Donald McDonald, £30; Mr. Ed. White, £21; Mr. Antony Waterer, £21; Mr. C. R. Fielder, £20; Mr. Leopold Salamons, £21; Mr. James Douglas, £17 11s. 6d.; Mr. A. Porteous, £11; Mr. David Thomson, £13 8s.; Mr. H. G. Cove, £15 (including 5 guineas from the *Gardeners Chronicle*, Ltd.); Mr. B. Lane, £13; Mr. H. W. Nutting, £10 10s.; Mr. N. F. Barnes, £10 10s.; Messrs. Barr & Sons, £10 10s.; Mr. H. Parr, £10 10s.; Mr. Geo. Paul, £10; Mr. T. Lamb, £10 10s.; Mr. Herbert J. Adams, £10 10s.; Lord Llangattock, £10; Mr. R. Jones, £10; Mr. W. Mackay, £10 10s.; Mr. G. Randell Higgins, £10 10s.; Mr. Robert Sydenham, £10; Mr. Henry Jones, £10 10s.; *Country Life and Garden*, £10 10s.; Mr. J. McKerchar, £10; Mr. T. H. Payne, £10 10s.; and Mr. A. Metcalfe, £10 10s. The Covent Garden salesmen contributed £200, including £160 collected by Mr. Geo. Monro and £40 by Mr. D. Ingamells.

The toast of "The Chairman," proposed by Col. the Rt. Hon. Mark Lockwood, M.P., concluded the proceedings.

Obituary.

WILLIAM CULVERWELL.—The death of this well-known hybridist took place on the 19th inst. Mr. Culverwell will be remembered for his intercrossing of fruits, his most remarkable plant being a hybrid between the Black Currant and Gooseberry. He also crossed the Raspberry with the Blackberry, and claimed to have crossed the Strawberry with the Raspberry (see *Gardener's Chronicle*, July 15, 1899). But this was not his only work in hybridising, for he made a



THE LATE WILLIAM CULVERWELL.

multitude of crosses between culinary Peas, two of his best-known varieties being Invincible and Telegraph. For more than thirty years he worked on the Polyanthus, producing great improvement in the colour of the flowers and habit of these plants. Mr. Culverwell was amongst those invited to attend the Hybrid Conference, held under the auspices of the Royal Horticultural Society on July 11 and 12, 1899. The funeral took place in the churchyard at Fencote, Bedale, Yorkshire, on the 22nd inst.

A. B. CRICHTON.—We regret to announce the death of Mr. A. B. Crichton, on the 4th inst., at the age of 83. Mr. Crichton's early

days were spent in Edinburgh, where he was educated, and later apprenticed to Messrs. Dickson & Co., of Edinburgh and Leith. He was afterwards in the service of Messrs. Alex. Cross & Sons, of Glasgow, Messrs. Drummond & Sons, of Dublin, and Messrs. Wigham & Co., of Dublin. He became manager of the seed department of Messrs. J. and G. Boyd, of Limerick, and, leaving there, he travelled for a number of years for Messrs. Charlwood and Cummins, of Covent Garden. About 1864 he started in business as a seed merchant on his own account, but his partner, Mr. Alfred Smithers, dying suddenly in 1876, he transferred the business first to the late Mr. Robert Cooper, with whom he remained till Mr. Cooper's death in 1887, and then to Messrs. Nutting & Sons, for whom he acted as traveller in the United Kingdom and Ireland for some 23 years. Mr. Crichton was actively interested in religious and philanthropic work of all kinds, and was one of the founders of the Commercial Travellers' Christian Association.

OTTO SEELISCH.—We regret to record the death of Mr. Otto Seelisch, senior partner of the firm of Messrs. Seelisch, Meyer & Co., Queen Victoria Street, and Barge Yard, London, E.C., at the age of 52. He was one of the pioneers of what is now known as the Japanese Bulb Trade. In the course of business he travelled very widely over the Continent of Europe, as well as in the East. Mr. Seelisch introduced the once highly popular "Makart" bouquet into this country, which had a large sale for many years, besides the decorative Pampas and other dried grasses, which were much used some 20 years ago. The business will be carried on under the same title by the other member of the firm, Mr. W. Meyer.

LAW NOTE.

THE SALE OF POISONS.

THE first of a series of cases instituted by the Pharmaceutical Society of Great Britain for the recovery of the penalty imposed by section 15 of the Pharmacy Act, 1868, for the illegal sale of poison was decided at the Kingston County Court by Judge Harington yesterday.

His honour, in giving judgment, said the Act of 1868 was passed to safeguard the public against the sale of poisons by persons lacking a competent and practical knowledge in respect of them. From the passing of the Act of 1868 until April 1, 1909, when the Poisons and Pharmacy Act of 1908 came into operation, nobody but a duly registered pharmaceutical chemist could sell poisons scheduled under the Act. The Act of 1908, section 2, provided that section 15 of the Act of 1868 should not apply in the case of poisonous substances to be used exclusively in agriculture or horticulture for the destruction of insects "if the person so selling is duly licensed for the purpose under this section by a local authority, but nothing in this section shall exempt any person so licensed from the requirements of any other provision of the Pharmacy Act, 1868, or of the Arsenic Act, 1851, relating to poisons." He could not think that it was the intention of the Legislature to relax the public safeguards in connection with the sale of poisonous substances. All that the Act of 1908 appeared to him to do was to enable persons other than pharmaceutical chemists to sell poisonous substances for agricultural purposes, but under restrictions equally stringent with those of the Act of 1868. And those restrictions were that the person who sold must be duly licensed by the local authority. In his opinion the defendant in this case had incurred the penalty, and he gave judgment in favour of the Pharmaceutical Society for £5 and costs.

Mr. Dobbs asked leave to appeal, and his Honour granted the application.

THUNDERSTORM IN VINCENT SQUARE.—One of the chimney stacks at the R.H.S. Hall in Vincent Square was struck by lightning during a thunderstorm which occurred shortly after 2 p.m. on Wednesday last. We are glad to state that no serious damage was done to the roof of the building.

MARKETS.

COVENT GARDEN, June 22.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemones, p. doz.	10-16	Marguerites, p. dz.	
Bouvardia	40-60	bunches white	
Calla (see Richardia)		and yellow	26-36
Carnations, p. doz.		Mignonette, per	
blossoms, best		dozen bunches	20-30
American (var.)	10-20	Odonatoglossum	
—Carola, and		crispum, per	
other special		dozen blossoms	16-26
varieties	40-50	Pelargoniums,	
—second size	16-20	show, per doz.	
—smaller, per		bunches	40-60
doz. bunches	120-180	—Zonal, double	
Cattleyas, per doz.		scarlet	30-50
blossoms	60-90	Poppies, Iceland,	
Eucharis grandiflora, per dozen	20-30	per doz. bchs.	90-120
Gardenias, per		Richardia atrorubra	
dozen	10-20	(Calla), per	
Gladiolus, Colvillei		dozen	16-20
varieties, per		Roses, 12 blossoms,	
dozen bunches	60-90	Niphetos	10-16
Gypsophila elegans,		—Bridesmaid	16-26
p. dz. bunches	20-30	—C. Testout	10-16
Heather (white),		—Kaiserin A.	
per bunch	10	Victoria	10-16
Iris (Spanish), per		—Capt. Hayward	10-20
doz. bunches	30-60	—C. Mermet	10-16
Lilac, per bunch	10-20	—Liberty	10-16
Lilium auratum		—Mme. Chatenay	10-26
per bunch	30-36	—Richmond	20-40
—candidum	20	—The Bride	10-20
—longiflorum	20-30	Spiraea, per doz.	
—lancifolium	16-20	bunches	40-60
—lancifolium	16-20	Stephanotis, 72	
album	16-20	"pips"	30-40
Lily of the Valley,		Stocks, per doz.	
p. dz. bunches	60-80	bunches	30-40
—extra quality	90-120	Sweet Peas, per	
		dozen bunches	20-50
		Tuberose, p. gross	40-60
		—per doz. blossoms	04-06

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen	40-60	Ferns (French)	50-60
Asparagus plumosus, long trails, per doz.	90-120	Galax leaves, per doz. bunches	16-20
—medium, doz.	90-120	Hardy foliage (various), per dozen bunches	30-90
—Sprengeri	90-120	Ivy-leaves, bronze	20-26
Berberis, per dozen	26-30	—long trails per	
Croton leaves, per dozen bunches	90-120	bundle	10-16
Cycas leaves, each	10-20	—short green,	
Ferns, per dozen	10-20	per dz. bunches	10-20
bunches (English)	10-20	Moss, per gross	30-40
		Myrtle, dz. bchs.	
		(English),	
		small-leaved	40-60
		—French	10-16
		Smilax, p. dz. trails	40-60

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Aralia Sieboldii, p. dozen	50-80	Erica Cavendishi,	
—larger specimens	90-120	per dozen	24-08-60
—Moseri	60-80	—persulata alba	24-08-60
—larger plants	120-180	—small plants	
Araucaria excelsa, per dozen	120-300	(various)	30-50
—large plants, each	36-50	Eucalyptus, per dz., in pots	30-80
Aspidistras, p. dz., green	15-24-0	—from the ground	30-60
—variegated	30-42-0	Ferns, in thumbs, per 100	80-120
Asparagus plumosus nana, per dozen	90-120	—in small and large 60's	120-200
—Sprengeri	90-120	—in 48's, per dz.	40-60
—tenissimus	90-120	—choicer sorts	80-120
Boronia heterophylla, per dz.	24-03-0	—in 32's, per dz.	10-18-0
—megastigma	18-02-40	Ficus elastica, per dozen	80-80
Calceolarias (herbaceous), per dozen	60-30	—repens, per dz.	60-90
—yellow, per dz.	50-60	Fuchsias, per dz.	60-90
Cinerarias, per dozen	50-80	—standards, each	20-40
Clematis, per doz.	80-90	Grevilleas, per dz.	40-60
—in flower	180-240	Heliotrope, per dz.	50-60
Cocos Weddelliana, per dozen	180-300	Hyacinths, per dz. pots, 3 in a pot	60-90
Coleus, per doz.	40-60	Hydrangeas, hortensis, per doz.	90-120
Crassulas, per doz.	80-120	—Thos. Hogg	120-240
Crotons, per dozen	120-180	Isotenis, per doz.	40-60
Cyclamen, per doz.	80-120	Kenia Belmontiana, per dozen	180-240
Cyperus alternifolius, per doz.	40-50	—Fosteriana, per dozen	180-300
—laxus, per doz.	40-50	Latania borbonica, per dozen	150-210
Erica candidissima, per dozen	180-240	Lilium longiflorum, per dz.	240-360
		—lancifolium, p. dozen	180-300
		—martagon per dozen	180-210

Plants in Pots, &c.: Average Wholesale Prices (Contd.).

	s.d. s.d.		s.d. s.d.
Lily of the Valley, per dozen	120-180	Petunias, per doz.	06-16
Marguerites, white, per dozen	50-80	—in 60's	20-30
Mignonette, p. doz.	40-60	Selaginella, p. doz.	40-60
Pelargoniums (show), per doz.	60-80	Spiraea japonica, per dozen	80-100
—Ivy leaved, per dozen	60-80	Stocks (Intermediate), per dz.	50-80
—Zonal	50-60	Tulips, in pots, special	60-90
		Verbena, per doz.	50-90

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples (Australian), per case:		Lemons, selected,	
—Monro's Favourite	96-110	large	160-200
—(Tasmanian), per case:		—(Naples), 420	220-250
—Ribston	90-100	—(Messina), 150	80-100
—New York	90-120	Melons (English),	16-26
—Scarlet Pearmain	96-116	—(Guernsey),	16-30
—Crows Egg	90-100	—(French), Cantaloupe, each	36-50
—Wellington	110-120	Nectarines, dozen:	
—Sturmer Pippin	96-106	—selected	100-150
—French Crab	90-110	—seconds	20-26
Apricots (French), per box	10-13	Nuts, Almonds, p. bag	36-420
—per case	20-36	—Brazil, new, per cwt.	450
Bananas, bunch:		—sorted	500
—Doubles	80-100	—Barcelona, per bag	32-340
—No. 1	66-70	—Cocoa nuts, 100	100-140
—Extra	76-80	Oranges—	
—Giant	96-120	—California	
—Red coloured	40-56	—Navel, box (80)	
—Red Doubles	80-90	—"case (86)	146-160
—Loose, per dz.	06-10	—" (112)	
Cherries (English), Early Rivers, per peck	80	—Denia, per case (420)	180-200
—(French), p. box	10-26	—(714) selected	240
—bushel	66-80	—Murcia (200)	126-170
Custard Apples, dz.	60-120	—(300)	106-166
Figs	10-50	Peaches (English), per doz.	80-180
Gooseberries, 1/2 bus.	23-30	—seconds	20-40
Grape Fruit, case:		Pears (Avocado), per doz.	60-120
—96's	200	—(Tasmanian),	
—80's	200	—Vicar of Wakefield, large cases	130-140
—64's	200	Pineapples, each	20-50
—54's	200	Strawberries, p. lb.	08-10
Grapes, per lb.		—cold house	08-10
—Black English, (new)	10-26	—(Kent), p. peck	20-30
Grapes (Australian), per 20 lbs.	180	—(Southampton's), per basket	09-16
—Black	200		
Lemons, per case:			
—(Messina), selected, 300	140-160		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (Globe), per dozen	30	Lettuce (French), Cos, per dozen	26-50
—Jerusalem, sieve	09-10	Marrows, per doz.	40-80
Asparagus, English, per bdl.	10-13	Mint, per dozen bunches	30-60
—Giant	76-200	Mushrooms, per lb.	010-10
—Montauban	19-20	—broilers	04-06
—Toulouse	16-20	Mustard and Cress, per dozen pun.	06-08
Beans (English and Chan. Islands), per lb.	09-10	Onions (spring), dz. bunches	16
—Broad (French), per pad	26-36	—Egyptian, bags	70
Beetroot, per bushel	20-26	Parsley, 1/2 sieve	16-20
Cabbages (spring), per hamper	26-36	Peas (French), per pad	46-50
Carrots (English), dozen bunches	40-50	—(Jersey) per lb.	49-10
—(French), per dozen bunches	50-60	—bus. English	30-36
Cauliflowers, hamper (24-30)	40-60	Potatoes (Algerian), cwt.	70-80
—per doz. (large)	30-40	—(Channel Islands), per lb.	010-12
—Dutch, p. crate	36	—(Teneriffe), per cwt.	60-90
Cucumbers, p. flat	60	—(Lisbon), case	40-46
—30's	56-60	Rhubarb, Natural, per dz. bundles	20-30
—36's	50-56	Radishes (English), per dozen	080-10
—42's	26-30	Spinach, 1/2 sieve	16-20
Endive, per dozen	26-30	Stachys tuberosa, per lb.	04-05
Greens, Spring, bag	10-16	Tomatoes—	
—Herbs (sweet), packets, per gross	70	—(English), per dozen lbs.	40-50
Horseradish, foreign, new, per bundle	10-16	—small selected	36-40
—12 bundles	120-180	—seconds	16-20
Leeks, 12 bundles	10-16	—(Guernsey), per dozen lbs.	40
Lettuce (English), per bushel	09-16	—(Teneriffe), per bundle	80-160
—hamper	16-26	Turnips, 12 bunches	20-30
—Cos, per dozen	20-40	Watercress, p. dz. bunches	60-66

REMARKS.—A few English Cherries of Early Rivers variety in the market this week have sold at 8s. per peck. The supply of English Cherries this season is expected to be very limited; in some of the Kentish districts the crop is almost a failure. Home-grown Tomatoes are more plentiful. Strawberries are arriving from the Southampton district in increased quantities; and there are some from Kent in peck baskets. Green Gooseberries are a shorter supply, the growers having stopped picking as the prices were unremunerative. The last shipment of Tasmanian Apples for this season has arrived, and there has been a slight improvement in the demand. Oranges continue to be dear for sound fruits; many boxes are arriving with fruit in an unsaleable condition. Melons of medium size continue to meet with a fair trade. E. H. R., Covent Garden, Wednesday, June 22, 1910.

THE WEATHER.

THE WEATHER IN WEST HERTS.

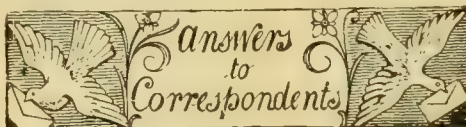
Week ending June 22.

Warm, dry, and remarkably sunny.—The days were as a rule warm, and also the nights. On the two warmest days the temperature in the thermometer screen rose in the hottest part of the day to respectively 78° and 79°—both being the highest readings so far of the year. The ground is now very warm, the temperature both at 1 and 2 feet deep being 4° warmer than is seasonable. No rain has fallen for nine days, and for the last two days there has been no percolation at all through either the bare soil gauge or that on which short grass is growing. The sun shone on an average for 9½ hours a day, which is as much as 3½ hours a day in excess of the average for the middle of the month. There were two very sunny days, on each of which the duration of bright sunshine was only a few minutes short of 14 hours. Calms and light airs alone prevailed during the week. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 8 per cent. E. M., "Rosebank," Berkhamsted, June 22, 1910.

DEBATING SOCIETY.

GUILDFORD AND DISTRICT GARDENERS'.

—The second outing of the members took place on June 9, when, by the kind invitation of Mr. F. Baring Gould, a party of 34 visited Merrow Grange. The choice and rare collection of shrubs, for which these gardens are noted, was first inspected, after which the members sat down to tea, provided by Mr. Baring Gould. After tea the glasshouses and kitchen gardens were visited, and the pleasant outing concluded about 8 p.m.



BEETLES DESTROYING ROSE: *Aria*. The insects sent are not in any way related to the Bean weevil. They are a small species of Rose chafer (*Phyllopertha horticola*) known as "Bracken Clocks." Collect the beetles by shaking the trees over an inverted umbrella. Vaporite is said to be effective in destroying the grubs, which latter live upon the roots of plants.

CHERRY BRANCH: *A. H.* The eggs are those of a mite belonging to the genus *Bryobia*. Some of the acarids are also present upon the branch. Prune out all the dead wood in autumn, and wash the trees in February with paraffin emulsion or liver of sulphur.

LILIUMS FAILING TO FLOWER: *G. H. P.* and *G. M.* The buds are attacked by the Lily fungus, *Botrytis*. Excessive dampness favours the disease.

MAGGOT IN CHRYSANTHEMUMS: *Mum*. You probably mean the leaf-miner. For preventive measures spray the plants frequently with quassia extract or other distasteful liquid, so as to prevent the females from depositing their eggs upon the leaves. Remove badly-affected leaves and burn them. The grubs should be pinched between the finger and thumb.

MILDEW ON VINES: *A. B.* The only effective way to deal with your Grapes is to dust the affected parts with flowers of sulphur. This can easily be washed off the bunches when they are well advanced in colouring. The pest will not spread after this stage. You must endeavour to find the cause of the attack. Dryness at the roots, on the one hand, or a stagnant rooting medium on the other, will quickly bring on an attack of mildew. Defective ventilation, too, is known to favour this pest. Make a careful examination of the border when the crop is cleared, and if the soil is found to be in a stagnant condition through bad drainage lift as many of the roots as practicable, remove as much of the old soil as can be done with safety, and see that the drainage is clear and ample, or you will experience the same trouble again next year. The roots must be carefully preserved and laid in fresh soil near to the surface, and the vines must be shaded till the roots are again active. Fumigate the house two or three times in the winter when the vines are dormant.

MUSHROOMS FAILING: *B.* The trouble is due to some wrong treatment, apparently keeping the bed and its surroundings too dry.

NAMES OF PLANTS: *D. W.* 1, *Sedum roseum*; 2, *Mesembryanthemum mutabile*.—*Clark Bros.* & *Co.* *Festuca ovina*.—*Frank Dibbins.* *Lilium*

pyrenaicum.—*W. H. Holah.* A seedling Pink. —*G. Booker.* 1, *Cupressus Lawsoniana*; 2, *Thuya plicata*; 3, *Juniperus virginiana* var. *Schottii*; 4, *Æsculus flava*; 5, *Thuya orientalis*; 6, *Cephalotaxus pedunculata*; 7, *Abies Pinsapo*; 8, *Juniperus communis*; 9, *Acer Negundo variegata*; 10, *Gasteria verrucosa*.—*Puzzled.* We do not undertake to name varieties of Roses. Send them to some grower, who can match them.—*H. P.* A very distinct form of *Cattleya intermedia*.—*A. C. H.* 1, *Masdevallia ignea*; 2, *Masdevallia Harryana* (coccinea); 3, *Brassia verrucosa*.—*Tipperary.* 1, *Billbergia nutans*; 2, *Reseda lutea*. Impossible to name the seeds sent.—*L. J. G.* *Hieraceum aurantiacum*.—*T. C. C.* 1, *Primula japonica*; 2, *Lonicera japonica variegata*; 3, one of the garden hybrids of *Begonia semperflorens*; 4, *Sedum Sieboldii variegata*; 5, *Carex japonica variegata*.—*Foreman.* 1, *Ocotoma diaphana*; 2, *Brassia brachiata*; 3, *Oncidium sphacelatum*; 4, *Masdevallia simula*; 5, *Pleurothallis macroblepharis*; 6, *Oncidium crispum*.—*H.* 1, *Lastrea dilatata*; 2, 3, and part of 4, varieties of *Athyrium Filix-femina*; 4, part of *Lastrea Filix-mas*; 5, *Adiantum formosum*; 6, *Polystichum angulare*.—*R. J. E.* *Phlomis fruticosa*. We do not undertake to name varieties of florists' flowers.—*Zebra.* *Limnathes Douglasii*.

PEACH LEAVES: *O. J. A.* The tree is affected with "Silverleaf," for which no remedy is known.

PEACH LEAVES DISEASED: *A. Shelton.* Nos. 1, 2, 3 are stages of shot-hole fungus. Use the solution recommended to *T. D.* in the issue for June 4. It should be used again next season, commencing when the leaves are unfolding.

PEACHES AND NECTARINES NOT THRIVING: *Kingstone.* There is no trace of disease present. It is a root trouble.

PHLOXES UNSATISFACTORY: *J. C. P.* The stems have been destroyed at the collar by a mining maggot. In future, place soot around the plants early in the season.

PROLIFEROUS ROSES: *J. M.* In such cases as yours the central axis of the flower, from some cause at present undetermined, continues to develop leaves, and in some cases a second flower.

ROSE LEAVES: *J. P.* The damage has been caused by a small, green grub, which you will find in the rolled-up leaves. Spray the plants with tobacco-water or some other insecticide.

ROSES WITHERING: *S. Devon.* There is no disease present, the trouble is due to an excess of moisture which has caused damping off.

SPIRÆA LEAVES: *J. P.* No disease is present. The leaves have been damaged by some external agency and appear as if scalded by sun-heat. Have you applied strong doses of liquid or chemical manures to the plants?

STRAWBERRY LEAVES DISEASED: *J. P.* The plants are affected with Strawberry leaf-spot. After the crop is gathered sprinkle straw over the plants and set it on fire.

TOMATOS: *W. M.* The Tomatos have been imperfectly fertilised. If you sprinkle a little table salt on the soil at intervals it will check the gumming.

TRICUSPIDARIA PENDENS: *T. A. H.* The reason of the shoots suffering seems to be due to imperfect ripening of the wood. Remove a few of the overcrowded shoots so as to admit light and air. The soil in which the plant is growing should be pressed firm, and as growth matures water should be given rather sparingly.

VINE LEAVES IN A "SUTTONS" SEEDBOX. Some vine leaves, sent without a letter, have been received, apparently for examination. The unhealthy condition is not due to disease, but to some error in culture.

Communications Received.—*N. N. S.*, Kendal.—*A. D.*—*W. C.*—*J. D.*—*B. G.*—*J. C. S.*—*J. R. D.*—*F. W. W. C.*—*A. W.*—*J. M.*—*D. & Co., Ltd.*—*W. H. B.*—*W. E. T.*—*W. A.*—*A. P.*—*F. M.*—*C. F.*—*Mrs. H. B. Y.*—*H. A. G.*—*B. & Sons*—*R. C. W.*—*A. B.*—*E. M.*—*A. & B., Ltd.*—*B. F.*—*W. T.*—*R. H. B.*—*J. G. W.*—*H. F.*—*J. W.*—*J. G. W.*, East Barnet—*W. K.*—*H. C.*—*R. P. B.*—*B. & S.*—*W. E. G.*, Queenstown—*J. B.*—*Ghent*—*R. H. S.*—*L. & N.*—*F. O.*—*H. P.*—*J. S.*—*H. C.*, Geneva—*M. McK.*—*J. H. H.*—*W. C.*—*C. P. D.*—*J. H.* (too late for this issue)—*W. M. D.*—*J. H.*—*O. R. S.*—*H. Y.*—*D. W.*—*W. M.*—*E. A. C. L.*—*W. W.*—*G. F.*, South-west China.

Potatos.

	per cwt. s.d.	Lincolns -	per cwt. s.d.
Blacklands...	2 0-2 6	Up-to-Date ...	2 9-3 6
Dunbars		Royal Kidney ...	2 0-2 6
Up-to-Date...	4 0-4 6	Maincrop ...	2 9-3 6
Lincolns		King Edwards ...	3 0-3 6
Evergood ...	2 0-2 6		

New Potatos.

Teneriffe, per cwt.	6 6-8 0	Jersey, per cwt.	7 0-7 6
St Malo, per cwt.	6 9-7 0	Cherbourg, per cwt.	6 0-6 6

REMARKS.—The trade in old tubers is nearly finished, although the sale of new Potatos is not brisk. Next week it is expected that many new Potatos will be received from Kent and Oxfordshire. *Edward J. Newborn, Covent Garden and St. Pancras, June 22, 1910.*

COVENT GARDEN FLOWER MARKET.

It is difficult at this season to give accurate prices or to say what subjects may be procurable. Supplies generally are plentiful, and very few things make more than normal prices. Carnations are plentiful, but the quality of the flowers varies greatly, and at this season the blooms do not keep fresh for long, so that the surplus, after the ordinary demands are met, are cleared at reduced prices. Some salesmen will not sell to casual buyers at prices below what their regular customers have paid. On one occasion the prices having fallen after I had bought, a grower allowed me the difference, and that man did as much business as any who attended the market, for it was always safe to order from him without the risk of any extortionate prices being charged. Those who take advantage of a shortage to put up the prices to regular customers are left alone when supplies are plentiful. Most growers still have supplies of seasonable plants on hand, but there may be a few things difficult to procure. I find that some growers have cleared out of the best quality bedding plants, and late orders may be difficult to execute. *Lobelia* is worth more than it was early in the season. There are still some good *Rambler* Roses, also *Hybrid Teas*, and others. Those not far advanced in flowering usually make the best prices. *Spiræas* are still very good; the pink varieties are appreciated by most florists. Unfortunately they vary in colour. *Hydrangeas*, both the white and pink flowered, are still very good, and with the changeable weather they are among the most useful of plants. Foliage plants are well supplied.

CUT FLOWERS.

Supplies are in most instances abundant, and the prices uncertain. Roses are good and sell out fairly well, yet there is a surplus of some sorts; it is much the same with Carnations. The old style of sending Carnations to market with short stems is a thing of the past; we have to thank the Americans for this. The varieties with long, stiff stems, of which President Roosevelt was one of the first to create a sensation, and still remains one of the most useful, are much appreciated. White Perfection remains one of the best, but the white sport from President Roosevelt is, perhaps, more useful, as it does not grow so tall and is as free as the type. Hardy flowers are a great feature: there are a few Carnations from the open. *Centaurea cyanus* is good; also *Myosotis*, *Gladioli* in several sorts, *Gypsophila elegans*, *G. paniculata*, and *Sweet Peas*. These latter blend well with Spanish Irises. *Lilium longiflorum* is fairly plentiful, and several other species. Tuberose are good. Growers now cut Poppies in the bud state which is an advantage, for they soon open in water and last longer. Supplies of almost all seasonable subjects have been rather excessive. It is a bad time for good foliage, the new growth in some instances being very soft, and the older, dull in colour. *A. H., Covent Garden, June 22, 1910.*

SCHEDULES RECEIVED.

Chester Paxton Society's annual exhibition of fruits and Chrysanthemums, to be held in the Town Hall, Chester, on Wednesday and Thursday, November 16, 17. Hon. secretary, Mr. G. P. Miln, Grosvenor Museum, Chester.

Brighton and Sussex Horticultural Society's Show will be held on Tuesday and Wednesday, July 5 and 6, in the Dome and Corn Exchange. The Mayor and Corporation of Brighton offer a silver bowl to the most meritorious competitive exhibit in the show. The most important prize for Roses is the society's silver gilt medal; a silver cup and £5 in money are offered for a group of Roses, and a challenge cup for a collection of Sweet Peas.

At the Finchley Horticultural Society's Show, to be held at the Manor House, Finchley, on July 14, a silver challenge shield, valued at 25 guineas, is offered by the president, A. W. Gamage, Esq., for the best collection of 20 bunches of Sweet Peas. The class is open to all growers in England and Wales, except trade firms. The schedule, giving particulars, can be obtained from the secretary, Mr. W. Speller, 4, Phoenix Cottages, Dollis Road, Church End, Finchley.

GARDENING APPOINTMENTS.

Mr. WILLIAM CURRIE, for the past 4 years as Second Gardener to Mrs. H. SEBAG-MONTEFIORE, East Cliff Lodge, Ramsgate, as Gardener at the same place.

Mr. JAMES A. COOK, formerly Gardener at Arnage Castle, Aberdeenshire, as Gardener at Altries House, Milltimber, Aberdeenshire.

Mr. JOHN STEPHEN, for some time Gardener-Assistant at Nunthorpe Hall, Yorks., and latterly at West Park, Mand, Aberdeenshire, as Gardener and Overseer at Meethill, near Peterhead, Aberdeenshire, the seat of KENNETH SMITH, Esq.

Mr. C. CROOKS, for the past 15 years Gardener to the late Dowager Lady HINDLIP, Hadsor House, Droitwich, as Gardener at Impney, Droitwich.



CORYPHA UMBRACULIFERA (TALIPOT PALM).

(AN ADULT PALM BEFORE FLOWERING, A PLANT IN BLOOM, AND A SPECIMEN PASSING TO DECAY.)



